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Lobster Pricing Analysis

Economic and Commercial Analysis
Report No. 91

Fisheries and Oceans Pêches et Océans

Canada

Lobster Pricing Analysis

Commercial and Market Analysis Division

Economic and Commercial Analysis Directorate
Department of Fisheries and Oceans
Ottawa, Ontario
K1A 0E6

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Report prepared by:

Gardner Pinfold Consulting Economist Ltd.
Halifax, Nova Scotia

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LOBSTER PRICING ANALYSIS

PREPARED FOR:

FISHERIES AND OCEANS

PREPARED BY:

GARDNER PINFOLD CONSULTING ECONOMISTS LIMITED

JANUARY 1991

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ABSTRACT

The absorptive capacity of the North American lobster market appeared to reach its limit in 1989-1990. Prices in general fell and the normally predictable seasonal price fluctuations became erratic.

This report begins with a review of recent lobster landings and price movements. A description follows of the structure and functioning of lobster markets and how prices are determined at the ex-vessel, shipper, distributor, wholesale and retail level. Time series and seasonal price data are compiled and analyzed for each trade level. The factors causing the recent downward pressure on prices and the departures from normal seasonal price fluctuations are explained.

RÉSUMÉ

La capacité d'absorption des marches semble avoir atteint sa limite en 1989-1990. Les prix en général ont baissé et les fluctuations saisonnières normalement prévues sont devenues imprévisibles.

Ce rapport commence par un survol des récentes tendances des débarquements et des prix. Suit une description de la structure et du fonctionnement des marchés du homard et de la détermination des prix à la sortie du bateau, à l'expéditeur, au distributeur, au grossiste et au détaillant. On présente également une analyse des séries chronclogiques et des données sur les variations saisonnières des prix pour chaque échelon. Les facteurs auxquels on attribue les récentes baisses de prix et les fluctuations saisonnière anormal sont expliqués.

SUMMARY

Background

The lobster industry in Atlantic Canada experienced unprecedented growth during the 1980s, following nearly record low catch levels during the 1970s. Total regional landings in 1989 were over 43,000 tonnes, with a landed value of $260 million. The growth coincided with strong economic expansion and rising demand for seafood products generally in the United States, Europe and Japan. Markets absorbed the increased supplies with little difficulty until 1987, with prices paid to fishermen keeping pace with inflation. A relatively weak Canadian dollar and successful efforts to develop new markets were key factors in maintaining the balance between international supply and demand.

The absorptive capacity of markets appeared to have reached its limits in the late 1980s. Prices in general fell, and the normally predictable seasonal price fluctuations became erratic. Fishermen experienced unusually high and low prices, with changes occurring at uncharacteristic times. With the fishing industry already beset with problems, weakening lobster prices were greeted with understandable concern.

Industry Structure Leads to Competitive Pricing

The lobster industry provides what could be termed a textbook case of a competitive market structure. This structure leads to competitively determined prices at each level of trade.

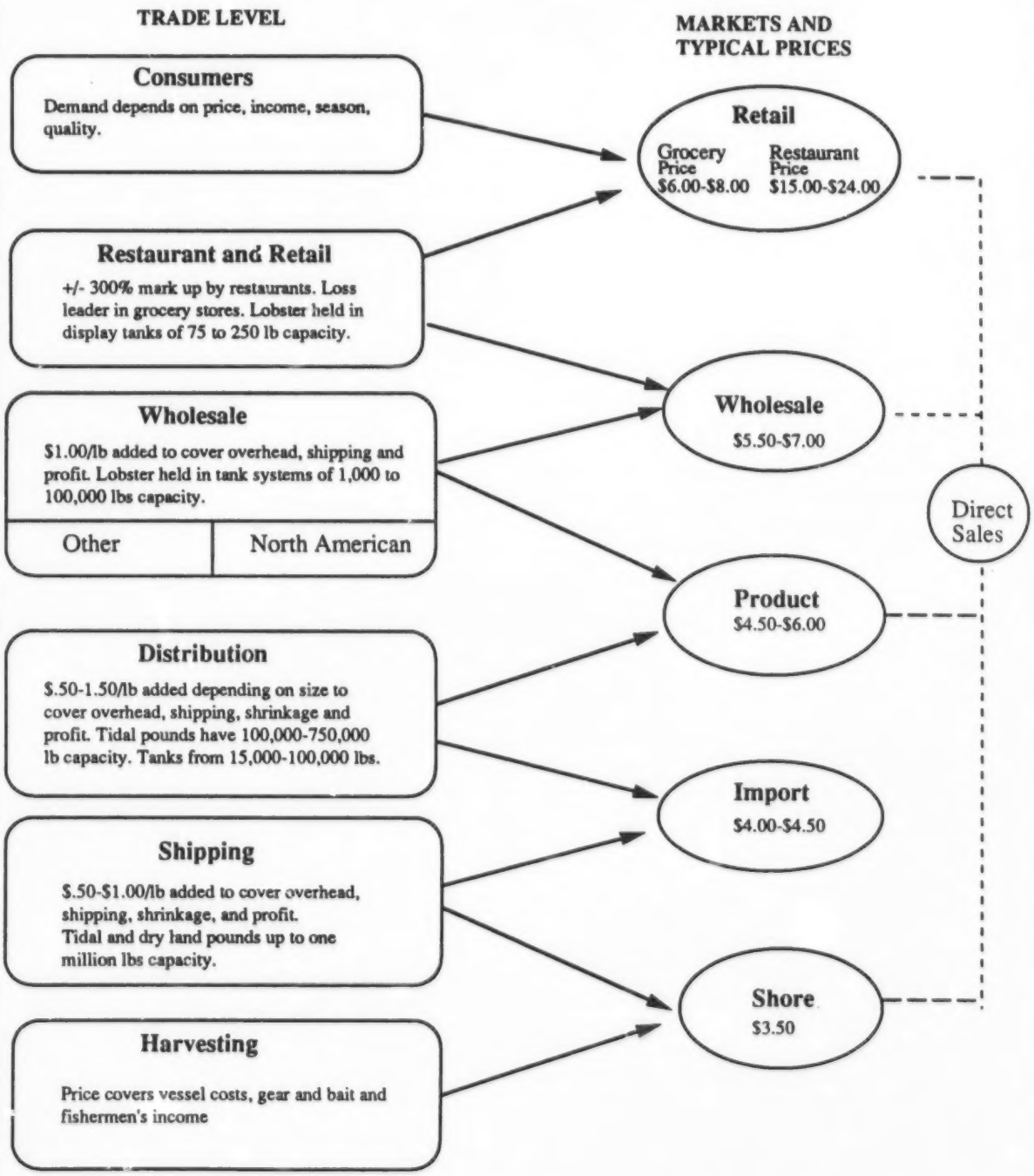
A highly simplified description of the price formation process is illustrated in Figure 1. The consumer demand for lobster is communicated by restaurants and retailers to wholesalers and distributors (including pound operators), and this in turn is communicated to shippers and processors. Competition among the latter to satisfy wholesale demand establishes prices at this level. Shippers and processors express their demand for lobster at the various ports and landing sites along the Atlantic Coast. Shore prices are established by the interactions between fishermen and buyers who may be representing local shippers and processors, or American distributors and wholesalers directly.

There are large numbers of buyers and sellers at each level of trade. Available data indicate a relatively low level of concentration among buyers and sellers of both markets and canners in Atlantic Canada. Low concentration implies weak market power and limited influence in setting prices.

Strong buyer-seller ties can inhibit competitive behaviour, but this is not the case in the lobster fishery. Though ties may be strong, they do not relieve the buyer from paying the going shore price. In other words, the elements of the buyer-seller relationship ensures the fisherman has a buyer, and the buyer a supplier; it does not influence price. Buyers know that failure to pay the shore price would result in fishermen shifting to another buyer.

In any industry, ease of entry and exit arguably offers the strongest assurance of competitively determined prices. If for some reason prices are below competitive levels, buyers would be attracted by the opportunity for quick profits. Entry and exit are easy for buyers dealing in live lobster. This puts pressure on established buyers to ensure prices are competitive. The ease with which "fly-by-night" buyers can enter the industry is a source of complaint among processors, particularly those with major investments in holding capacity.

Figure 1: General Schematic of Price Formation in North American Lobster Markets


TRADE LEVEL
MARKETS AND TYPICAL PRICES
Consumers
Demand depends on price, income, season, quality.
Restaurant and Retail
+/- 300% mark up by restaurants. Loss leader in grocery stores. Lobster held in display tanks of 75 to 250 lb capacity.
Wholesale
$1.00/lb added to cover overhead, shipping and profit. Lobster held in tank systems of 1,000 to 100,000 lbs capacity.
Other
North American
Distribution
$.50-1.50/lb added depending on size to cover overhead, shipping, shrinkage and profit. Tidal pounds have 100,000-750,000 lb capacity. Tanks from 15,000-100,000 lbs.
Shipping
$.50-$1.00/lb added to cover overhead, shipping, shrinkage, and profit. Tidal and dry land pounds up to one million lbs capacity.
Harvesting
Price covers vessel costs, gear and bait and fishermen's income
Retail
Grocery Price $6.00-$8.00
Restaurant Price $15.00-$24.00
Wholesale
$5.50-$7.00
Direct Sales
Product
$4.50-$6.00
Import
$4.00-$4.50
Shore
$3.50

Prepared by Gardner Pinfold Consulting Economists Ltd.

Both pay the same shore price and sell into the same market, but the established shipper must somehow earn higher gross margins to cover capital and operating costs.

Entry conditions are more difficult in the processing segment of the industry in the Gulf. Nonetheless, the number of processors has grown over the years in response to increased landings and favourable markets. Government assistance has also played a role. The industry is composed of a large numbers of processors and has relatively low concentration. In addition, the presence of fishermen's cooperatives provides a measure of countervailing power to maintain competitive behaviour amongst companies.

Several Factors Account for Declining Prices and Abnormal Fluctuations

Expressed in the simplest terms, the declining prices and abnormal price fluctuations of the past three years may best be described as the reaction of the industry to the difficulties markets had in digesting increased supplies. The problem has both long-term and short-term dimensions.

The long-term downturn in prices reflects declining economic conditions in principal markets (mainly the northeast United States). It also reflects a slowing down in market development in the face of continuing increases in supply. In short, unless and until new markets are developed, the limits to growth would appear to have been reached.

The short-term instability would appear to be a reflection of the four key factors outlined below. These are always present in the lobster industry, but each taken individually is not generally a source of serious disruption. Disruptive changes in these factors coincided in 1989/90, and against the backdrop of the long-term demand-supply imbalance, led to the difficulties experienced.

Figures 2 and 3 illustrate the Scotia-Fundy and Gulf shore price movements and provide summary explanations for the key turning points.

Inherent Uncertainty

There is an element of inherent uncertainty in an activity which depends on unpredictable resource and weather conditions. Weather played an important role in affecting winter supply in 1987/88, and effectively undermined the balancing act performed by pounds.

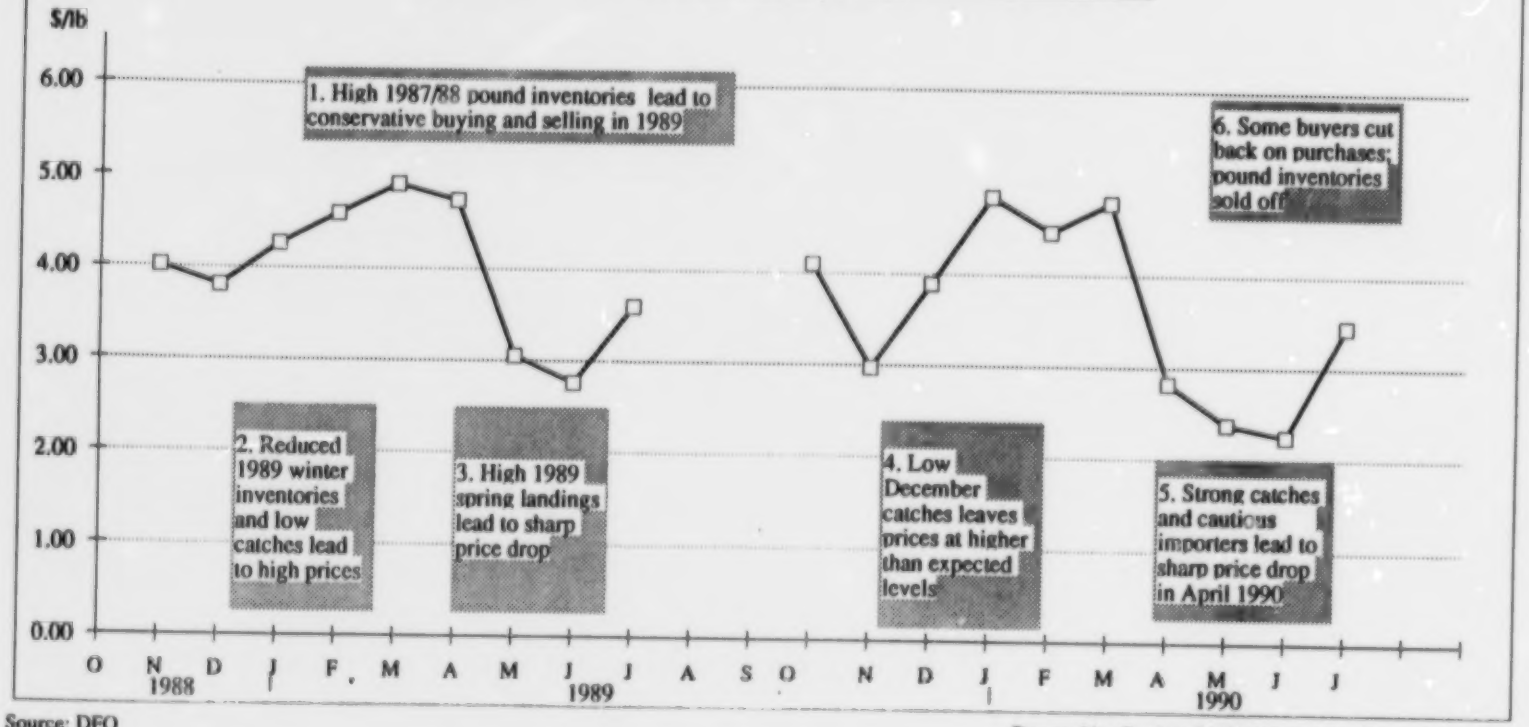
Speculative Behaviour

There is a seemingly heavy reliance on an informal supply management system – pounds – for bringing demand and supply into balance. Pounds play an important role, but they survive on the basis of speculative behaviour. Experience shows that with the right combination of market circumstances, they can increase rather than minimize instability.

Supply-Driven Industry

The industry is supply-driven, compelling buyers to purchase what is caught irrespective of market conditions. This promotes risk-taking and leads to instability. This characteristic was particularly strong in 1988 as buyers at all levels in the industry aggressively secured whatever supplies they could (often at relatively high prices) in anticipation of continuing price increases. Consumer resistance undermined these expectations. Many operators were left with substantial inventories and suffered losses when these were sold off. The resulting price drop affected broad segments of the industry, including fishermen.

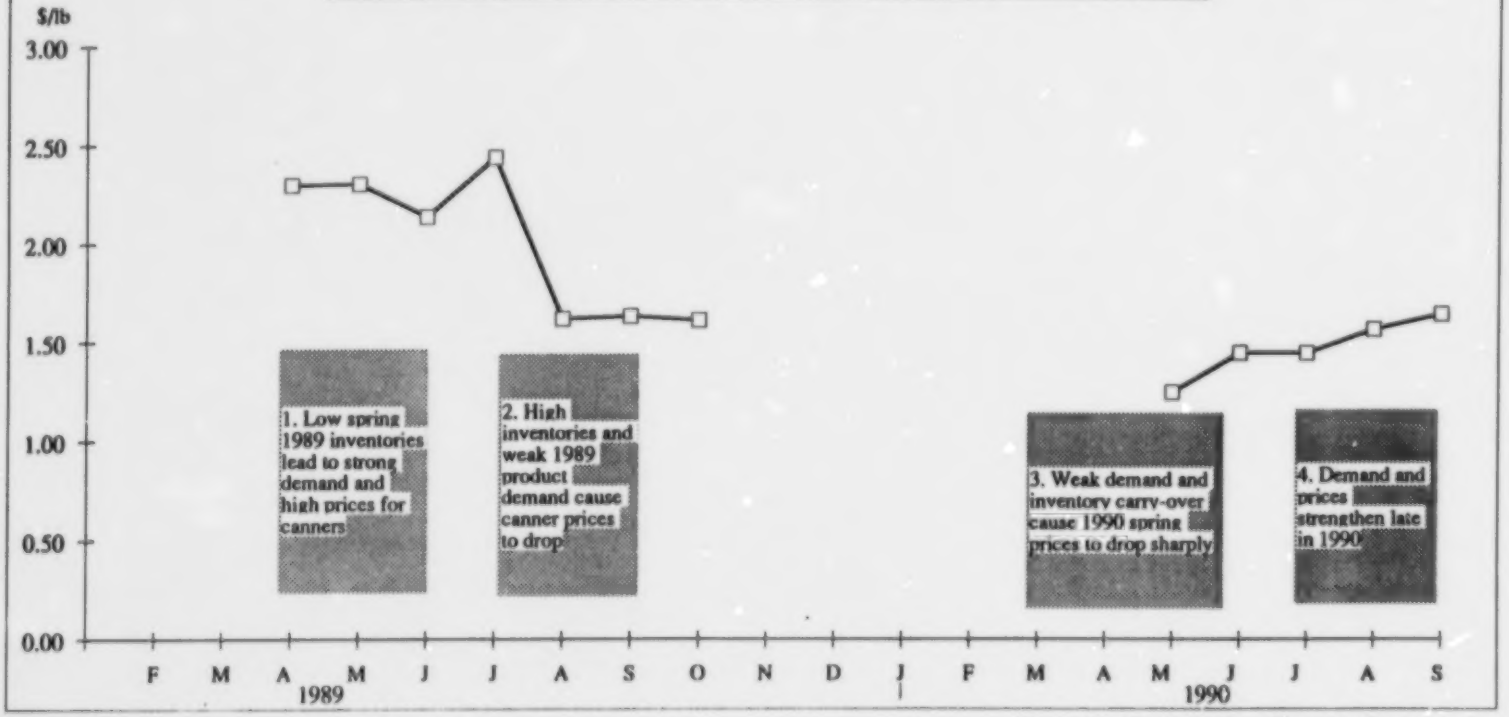
Figure 2: Scotia-Fundy Shore Price Movements, 1988-1990


$/lb
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1. High 1987/88 pound inventories lead to conservative buying and selling in 1989
2. Reduced 1989 winter inventories and low catches lead to high prices
3. High 1989 spring landings lead to sharp price drop
4. Low December catches leaves prices at higher than expected levels
5. Strong catches and cautious importers lead to sharp price drop in April 1990
6. Some buyers cut back on purchases; pound inventories sold off
O N D J F M A M J J A S O N D J F M A M J J
1988
1989
1990

Source: DFO

Prepared by Gardner Pinfold Consulting Economists Ltd.

Figure 3: Gulf Region Shore Price Movements for Canner Lobster, 1988-1990


$/lb
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1. Low spring 1989 inventories lead to strong demand and high prices for canners
2. High inventories and weak 1989 product demand cause canner prices to drop
3. Weak demand and inventory carry-over cause 1990 spring prices to drop sharply
4. Demand and prices strengthen late in 1990
F M A M J J A S O N D J F M A M J J A S
1989
1990

Source: DFO

Prepared by Gardner Pinfold Consulting Economists Ltd.

Inadequate Information

The necessary quality of information to clear the market efficiently is missing. For a market to function smoothly (i.e., for stable price adjustments in response to changes in supply and demand) accurate information about market conditions has to be widely available. While the market information (quantity and prices) at the harvesting and wholesale levels tends to be of good quality, there is clearly room for improvement at the importer or distribution level where lobster may held for considerable periods in pounds and other holding facilities. Because information on quantities held is not readily available, individuals are forced to react to market signals with limited knowledge. In a segment of the market based at least in part on speculation, this can lead to over-reaction and instability.

I. INTRODUCTION

Background

The lobster industry in Atlantic Canada experienced unprecedented growth during the 1980s, following nearly record low catch levels during the 1970s. Total regional landings more than doubled (to over 40,000 tonnes) to achieve their highest levels this century. This coincided with strong economic growth and rising demand for seafood products generally in the United States, Europe and Japan. Markets absorbed the increased supplies with little difficulty, with prices paid to fishermen keeping pace with inflation. A relatively weak Canadian dollar and successful efforts to develop new markets were key factors in maintaining the balance between international supply and demand.

The absorptive capacity of markets appeared to have reached its limits in the late 1980s. Prices in general fell, and the normally predictable seasonal price fluctuations became erratic. Fishermen experienced unusually high and low prices, with changes occurring at uncharacteristic times. With the fishing industry already beset with problems, weakening lobster prices were greeted with understandable concern.

Objectives

This report is intended to address some of the questions raised by lobster fishermen in Atlantic Canada. It has two main objectives:

- to explain the structure and functioning of lobster markets in Canada; and,
- to explain recently observed price movements at the different trade levels (ex-vessel, shipper, wholesaler and distributor, retail and restaurant).

The report begins with a review of recent landings and price trends. A description follows of the structure and functioning of the lobster industry in Atlantic Canada, its main products and how prices are determined at each level of trade. Time series and seasonal price data are compiled and analyzed for each trade level. The factors causing the recent downward pressure on prices, and the departures from normal seasonal price fluctuations, are explained.

The study relies on shore price data from the Gulf (excluding western Newfoundland) and Scotia-Fundy Regions. This is not to suggest that similar price changes have not occurred in other Regions; they have. But using data from all regions would unnecessarily complicate the analysis. The Gulf and Scotia-Fundy Regions account for 90 percent of the catch, and are representative of the two main segments of the industry: the live and processed lobster markets. As well, they are representative of the seasonal pattern of landings.

Recent Trends

The Resource

The Atlantic Canada lobster fishery has experienced several cycles of prosperity and decline in this century. It is currently enjoying one of its longest and sharpest periods of growth (Figure 1). Careful management may account for part of this. The fishery is controlled through limited entry licensing, trap limits, closed seasons, minimum size restrictions and a requirement that egg-bearing females be returned to the water. But it is interesting to note that catch increases have also occurred in the northeastern United States where management measures are less stringent. The elements of control are confined

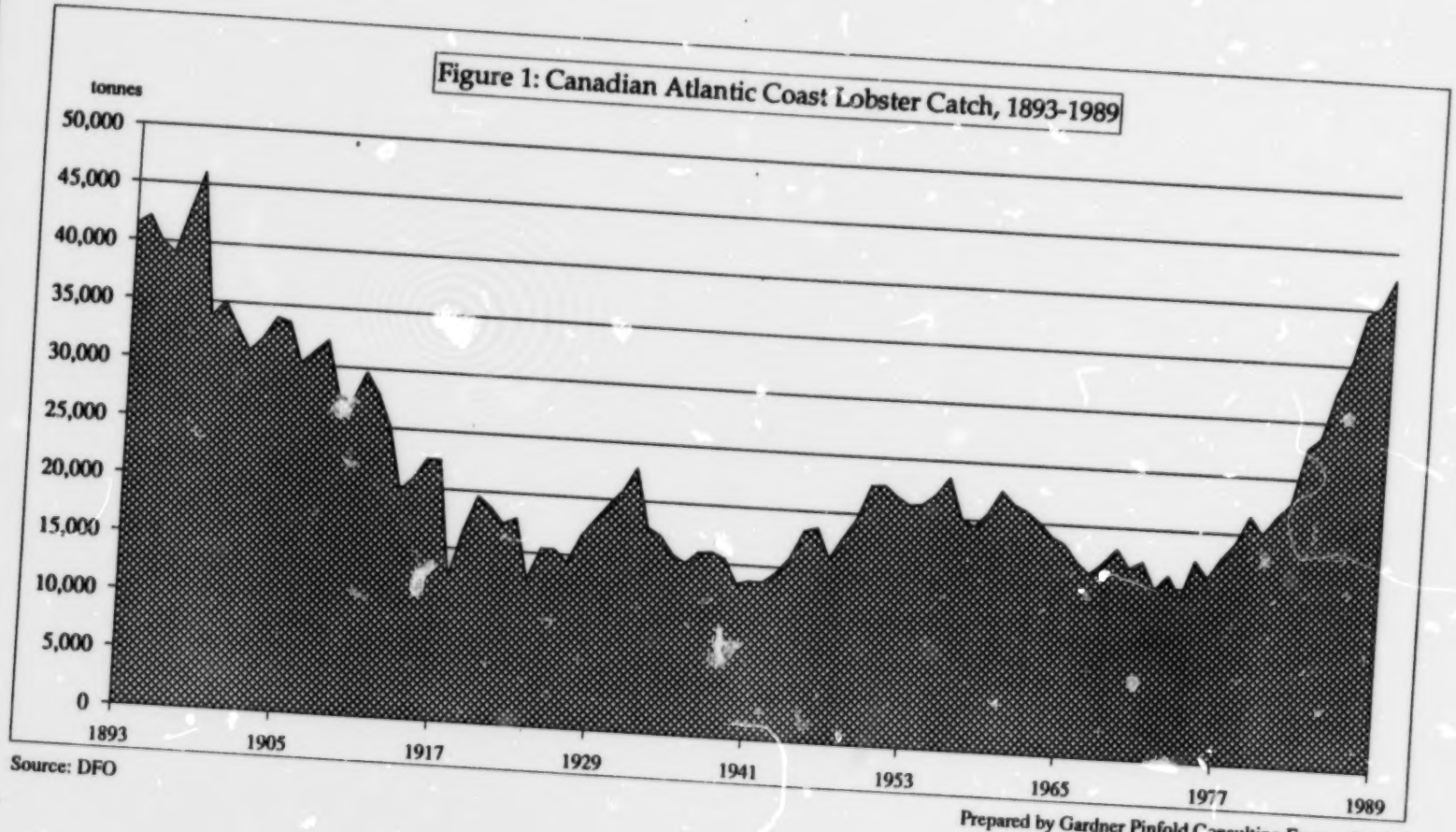


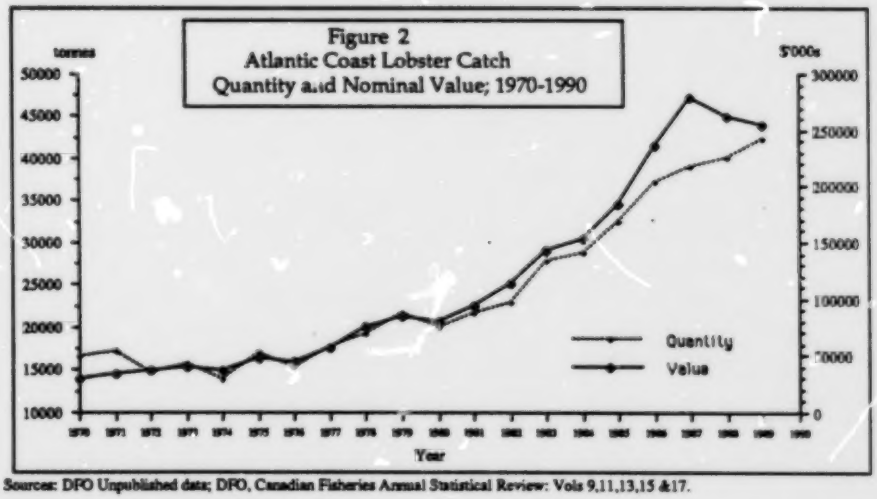
Figure 1: Canadian Atlantic Coast Lobster Catch, 1893-1989
tonnes
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1893
1905
1917
1929
1941
1953
1965
1977
1989
Source: DFO
Prepared by Gardner Pinfold Consulting Economists Ltd.

to minimum size restriction, the requirement to return egg-bearing females to the water, and a prohibition on landing females identified with a V-notch.

Scientists attribute the increase in landings to an increase in the number of young lobsters entering the fishery ("recruitment"). One or more environmental factors are believed to be the cause of this increase: changes in temperature fresh water runoff, and in the composition or productivity of the ecosystem. Each of these plays a role in recruitment, but scientists are not yet able to determine the precise nature of the relationship. While management may not have caused the increase in recruitment, it may help to sustain it and the increased landings that have resulted from it.

Catches and Revenues

The 1980s marked a substantial turn-around for fishermen who experienced depressed landings and prices during the 1970s. Atlantic Coast landings more than doubled in weight and tripled in nominal value between 1980 and 1989 (Figure 2). After adjustments are made for inflation, the value of landings over the period doubled in real terms. With little or no change in the number of licensed fishermen active in the fishery, average gross incomes also doubled.



Sources: DFO Unpublished data; DFO, Canadian Fisheries Annual Statistical Review: Vols 9,11,13,15 &17.

The growth in real value reflects the inflationary trends at the time. Lobster prices increased faster than prices in the economy generally until 1988 (Figure 3).

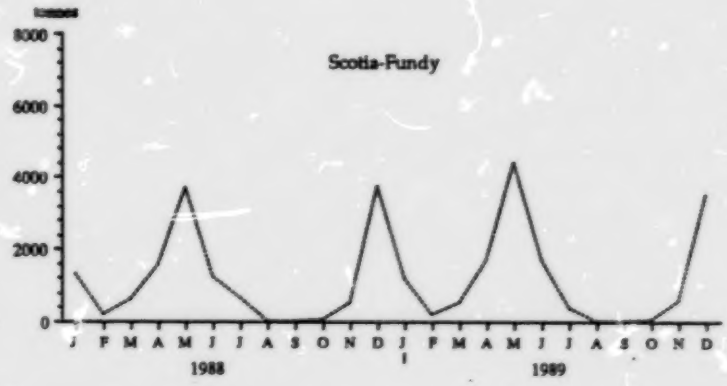
Regional Diversity

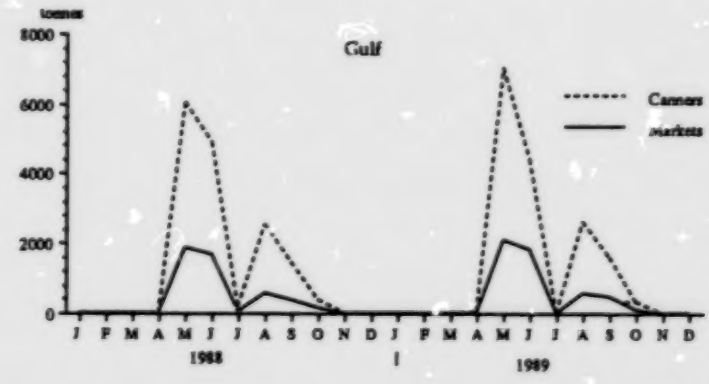
Region-wide averages obscure the great diversity in the fishery. The natural environment is most favourable in the Gulf and Scotia-Fundy Regions. They produce about 90 percent of the catch by weight and value (Table 1). The Gulf, while leading in production by weight, ranks second to Scotia-Fundy by catch value. Differences in the size mix of lobsters and the timing of the fishing seasons account for this.

Canners and Markets

About 75 percent of the Gulf catch is too small to be marketed successfully as live lobster. Most of it is processed and falls into the "canner" category (<83.5mm minimum carapace size). Canners are of less value per unit of weight than lobsters large enough to be sold on the live market. Over 90 percent of

Figure 4: Scotia-Fundy and Gulf Regions Seasonal Lobster Landing Patterns, 1988-1989

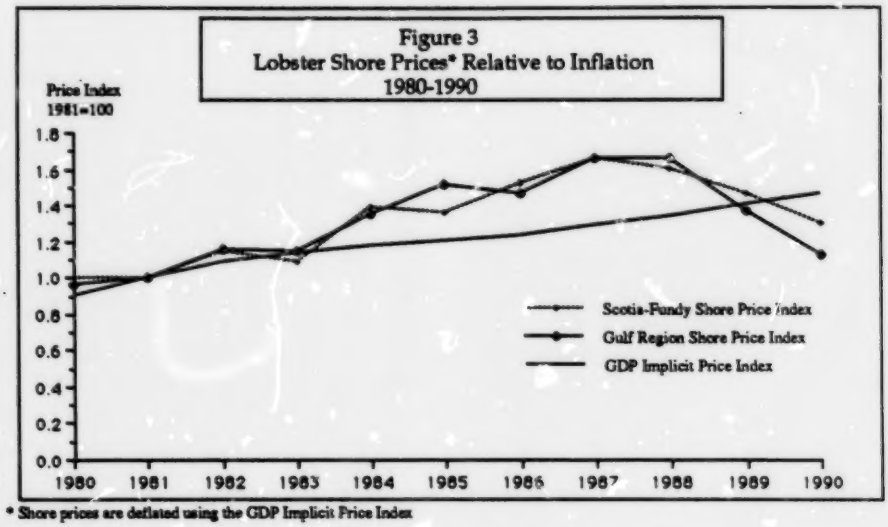




Prepared by Gardner Pinfold Consulting Economists Ltd.

Source: DFO, Special Tabulation. * excludes west coast of Newfoundland

Scotia-Fundy lobsters falls into the "market" category (81.0mm minimum carapace size).



* Shore prices are deflated using the GDP Implicit Price Index

Seasonal Factors

The higher average shore prices paid in Scotia-Fundy also reflects the favourable timing of the catch in relation to market conditions. There are two peaks – December and May – the first of which coincides with strong market demand and limited supplies from other sources. There are two peaks in the Gulf, the larger in May and the smaller in August. The 1989 seasonal patterns of supply depicted in Figure 4 are typical for these Regions.

Table 1
Distribution of Lobster Landings by Region
1989

Region	Canners				Markets and Other*				Total	
	tonnes		($'000s)		tonnes		($'000s)		tonnes	($'000s)
Scotia Fundy	1,715	9%	8,596	10%	14,357	59%	114,914	67%	16,072	123,510
Gulf	16,513	87%	74,712	85%	6,109	25%	35,483	21%	22,621	110,195
Quebec	819	4%	4,657	5%	2,384	10%	14,141	8%	3,203	18,798
Newfoundland	0	0%	0	0%	1,360	6%	8,047	5%	1,360	8,047
Atlantic Total	19,047	100%	87,965	100%	24,210	100%	172,584	100%	43,256	260,550

Source: DFO
Prepared by Gardner Pinfold Consulting Economists Ltd.
* Other includes jumbos and unspecified sizes

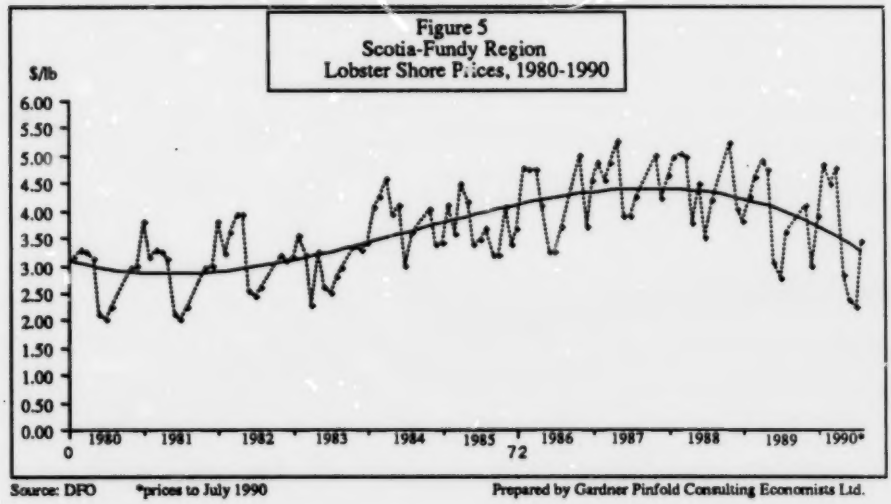
Prices

Scotia-Fundy

Ex-vessel or shore prices for market lobster typically show considerable seasonal variation in response to changing demand and supply conditions in wholesale and retail markets. Prices are normally highest during the fall/winter fishery in southwest Nova Scotia. Demand is strong and supplies from other sources are limited. As areas open elsewhere in the spring, supplies increase substantially and prices drop. Rising demand in summer puts upward pressure on prices. This is moderated by catches in the United States which tend to peak during late summer or early fall.

Lobster pounds also influence prices. They act as a "sponge" absorbing lobster at times of excess supply and releasing it onto the market when prices are more favourable. While pounds play a valuable role in stabilizing supply, they also have a speculative element which can lead to instability. For example, a miscalculation about seasonal supply can cause an operator to rapidly reduce inventories to try to avoid lower future prices. But such action is self-defeating because every operator reacts in the same way to the same market indicators. Through their simultaneous actions, operators bring about the the very problem each sought to avoid. In other words, what may be rational for the individual is irrational for the group.

The seasonal pattern of prices from January 1980 to June 1990 is depicted in Figure 5. In the early 1980s prices tended to fluctuate widely with few peaks and troughs. The range of fluctuations narrowed during the mid-1980s, though the number of peaks and troughs increased. By the late 1980s the pattern had reverted to that experienced early in the decade. Also shown in Figure 5 is a statistically-derived long-term trend. It shows that the strong upward trend in prices characterizing most of the 1980s began to weaken in 1988, and has declined since. These and other changes are examined in detail in Chapter III.



Source: DFO *prices to July 1990 Prepared by Gardner Pinfold Consulting Economists Ltd.

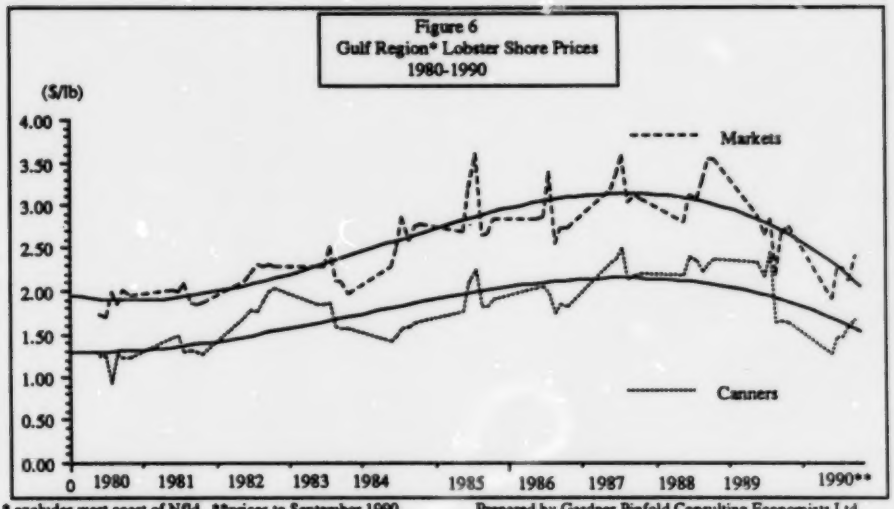
Gulf

Shore prices for canner lobster are lower than for markets, and generally vary within a narrow range over the season. The relatively lower shore price reflects conditions in final markets where processed lobster commands a lower price than the live product. Given its ability to be stored and shipped, demand and supply for processed lobster are more easily kept in balance thus minimizing price fluctuations. Demand in final product markets is less volatile than for live lobster, though if export patterns are any guide, processed product follows the same general seasonal pattern.

The seasonal pattern of shore prices from January 1980 to September 1990 is depicted in Figure 6. Canner prices show relative stability until the 1989 and 1990 seasons. Prices for markets are less stable, though the many sharp peaks and troughs evident in Scotia-Fundy are absent due in part to the time and length of the season, and in part to the system of price rebates used in the

Regior. Also shown in Figure 6 is a statistically-derived long-term trend. It shows that the strong upward trend in prices characterizing most of the 1980s began to weaken in 1988, and declined until mid-1990 when prices began to stabilize. These and other changes are examined in detail in Chapter III.

Figure 6
Gulf Region* Lobster Shore Prices
1980-1990



* excludes west coast of Nfld. **prices to September 1990. Prepared by Gardner Pinfold Consulting Economists Ltd.
Source: DFO

Export Markets

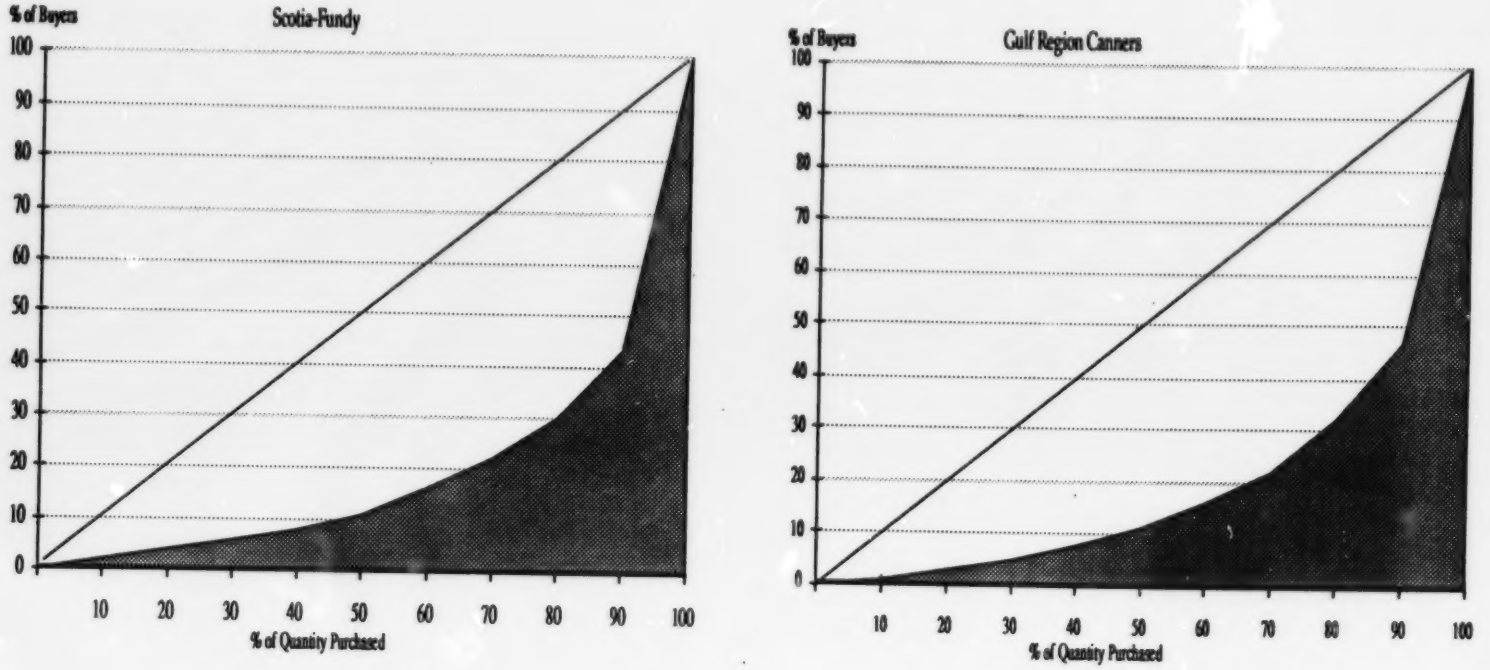
Canada exports about 95 percent of its lobster production (by value). The United States is the principal market, accounting for about 70% of export value. Europe accounts for 23% and Japan 7% (Table 2). The relative importance of Europe and Japan has grown considerably in the past five years. It is expected to continue to grow with improved marketing efforts by Canadian companies, and with the apparent saturation of the United States market.

Table 2
Canadian Lobster Exports, 1988
(Cdn $'000 F.O.B. Plant)

Product	U.S.	Japan	France	Europe Other	Other	Total
Live	145,687	7,134	9,913	27,690	2,631	193,055
Cooked:						
Fresh in Shell	3,727	449	375	251	3	4,805
Fresh Meat	5,613	–	41	361	–	6,015
Frozen in Shell	18,763	7,603	4,178	2,366	323	33,233
Frozen in Brine	869	7,142	16,405	10,329	107	34,852
Frozen Meat	42,433	479	1,770	1,960	126	46,768
Canned						
(Hot Packed)	16,767	454	378	783	3	18,385
Other	2,181	228	208	187	2	2,806
Totals ($'000)	236,040	23,489	33,268	43,927	3,195	339,919
%	69%	7%	10%	13%	1%	

Source: DFO Prepared by Gardner Pinfold Consulting Economists Ltd.

Figure 7: Concentration of Purchases Among Lobster Buyers



Prepared by Gardner Pinfold Consulting Economists Ltd.

II. INDUSTRY STRUCTURE AND PRICE FORMATION

Overview

Transactions between fishermen and buyers in Atlantic Coast ports are one link in the chain of market operations required to move lobster from the ocean to final consumers. The ultimate aim is to satisfy consumer demand, and this is where the process of price formation starts. Prices are determined at each trade level as restaurants and retailers, wholesalers, shippers and fishermen each try to maximize their profits given the demand and supply conditions. The final result is a supply of fresh and processed lobster at prices consumers are willing to pay.

The United States is the principal market for Canadian lobster (both live and processed), and as such, exerts a dominant influence on prices. For this reason, the discussion of the structure of final product markets focuses mainly on this market.

Industry Structure

The Issues

The focus of this study is to examine how buyers and sellers at the various trade levels interact with each other to determine prices. A major consideration in this respect is industry structure. By industry structure is meant those characteristics of an industry governing the nature of competition among buyers and sellers at each level of trade. The relevant characteristics are:

Industry Concentration

The number and relative size of buyers and sellers provide an indication of market power and reflect the degree of competitiveness in an industry. Market power is normally expressed in terms of industry concentration: the share of sales or purchases accounted for by the largest individual sellers or buyers. For example, in a market characterized by high buyer concentration, a few companies would account for a large share of purchases and would be able to exert considerable influence over price. Conversely, in markets characterized by low buyer concentration, each company would account for a small share of purchases and be a price taker.

Buyer-Seller Relationships

Formal and informal links between buyers and sellers (fishermen) may limit their independence. The relationship is formal if the buyer owns the vessel and controls the catch. This occurs in the offshore lobster sector and is not an issue in this study. The relationship is informal if there is separate ownership of harvesting and processing equipment, but with arrangements between buyers and fishermen which provide some mutual guarantees. To the extent independent action by fishermen is constrained, transactions would not be subject to price competition from other buyers. This could affect price levels and the speed with which prices change in response to market conditions.

Entry and Exit Conditions

Freedom of entry and exit are fundamental characteristics of a competitive industry. This means any new company or individual may begin buying or selling if it appears profitable to them to do so, or conversely, may stop and leave the industry. It also means that existing participants have no way of barring the entry of others and there are no legal restrictions on entry or exit. Where barriers exist, industry price setting or investment behaviour may depart from that expected in a competitive industry.

Table 3
Scotia-Fundy and Gulf* Region
Seasons, Fishermen and Landings, 1989

Lobster Fishing Area	Lobster Fishing Season	# of Licenced Fishermen	Total Landings		Average Landings Per Licenced Fisherman		Average Price ($/lb)
			tonnes	$'000s	Kgs	$	
23	April 30 - June 30	770	4,486	23,782	5,826	30,885	2.40
24	May 9 - July 14	639	5,878	23,432	9,198	36,670	1.81
25	August 6 - October 4	609	3,544	17,589	5,819	28,881	2.25
26	May 9 - July 4	1038	7,236	38,522	6,972	37,112	2.41
27	May 15 - July 15	547	3,606	20,598	6,592	37,656	2.59
28	May 9 - July 10	18	21	123	1,167	6,833	2.66
29,30,31	April 19 - July 21	250	850	5,511	3,400	22,044	2.94
32	April 19 - June 20	168	239	1,718	1,423	10,226	3.26
33	Last Mon. in Nov. - May 31	775	1,927	16,229	2,486	20,941	3.82
34	Last Mon. in Nov.- May 31	982	8,008	68,910	8,155	70,173	3.90
35	Feb. 28(9) - Dec. 31, & Oct. 14 - July 31	95	285	2,369	3,000	24,937	3.77
36,37	Mar. 31- Jan.14, & 2nd Tue. in Nov.-June 29	196	249	1,762	1,270	8,990	3.21
37,38,39	2nd Tue. in Nov. - 4th Fri. in June	143	431	3,180	3,014	22,238	3.35
41	October 15 - October 14	8	455	3109	56,875	388,625	3.10

Source: DFO, Special Tabulation

Prepared by Gardner Pinfold Consulting Economists Ltd.

* excludes the west coast of Newfoundland

Concentration

Harvesting

There are some 4,450 licensed lobster fishermen in the Gulf Region and another 3,100 in Scotia-Fundy. Landings of lobster are recorded at over 700 ports. Harvesting is strictly controlled through trap limits, closed seasons and size limits. These vary across the 18 Lobster Fishing Areas (LFA) in the Regions, though all fishermen within a given LFA are subject to the same restrictions. Some Areas have larger and more productive grounds than others and this results in wide differences in landings by LFA (Table 3). Within a given area, some fishermen catch more than others because they are more skilled, have better boats and gear, or simply work harder. But despite these differences, landings are distributed fairly evenly among fishermen. In Scotia-Fundy for example, DFO landings data show that in recent years at least 50% of fishermen account for 80% of landings in most Areas.

In the Scotia-Fundy Region, fishermen act individually when selling lobster. The most productive fishermen would account for a small fraction of the total catch. Many are members of associations or unions, but these organizations do not participate directly in transactions with buyers. This is in contrast with the Gulf Region where, in addition to individual sales, 20 cooperatives sell lobster on behalf of their members (not all fishermen are members). In 1989, the coops controlled about 25 percent of the catch.

Buying (Processing and Shipping)

In 1989, there were 205 lobster buyers in the Scotia-Fundy Region and 215 in the Gulf (including the cooperatives). The buyers may be processors themselves, or their commissioned agents or salaried employees. Processors fall into two general categories: those who ship live lobster (by truck to the United States or by air to Europe and Japan) and those who process for the export market by freezing or canning (Table 4). Lobster size and proximity to market allow the 100 or so processors operating in Scotia-Fundy to concentrate on the live market. The 70 or so processors in the Gulf are more diversified, though the bulk of lobster (85%) is marketed as frozen or canned product.

Table 4
Number of Processors by Type of End Product

Region	Lobster Product*		
	Live	Frozen	Canned
Scotia Fundy	109	6	0
Gulf	48	17	14

Source: DFO

* Processors may fall into more than one category

Determining the degree of industry concentration is difficult due to the complex buying network. The official DFO statistics (based on purchase slips) indicate low levels of buyer concentration: in Scotia-Fundy the top ten companies buy 25% of landings, while in the Gulf the top ten account for about 30%. Figure 7 illustrates the degree of buyer concentration based on sales slip information. It should be noted that these data are somewhat misleading because about half the buyers are agents acting on behalf of shippers and processors. Information provided informally during this study by some of the major processors suggests the top ten companies in Scotia-Fundy and the Gulf (combined) purchase about 40% of total landings.

Distribution

The distribution of lobster is carried out by importers, wholesalers, brokers and traders. They are the middlemen or intermediaries in the industry, whose livelihood depends on their knowledge of sources of supply and demand. Their role is to move product efficiently from producer to consumer; they react to market demand to supply what their customers want.

American importers buy mainly from Canadian shippers; some have set up in Canada and buy directly from fishermen. They hold lobster in tidal pounds and tank systems and airfreight or truck to regional distribution centres. Wholesalers purchase product from air freighters, shippers and processors, and hold it for resale to retail customers. Brokers are selling agents for shippers and processors; they are paid a commission to arrange sales. Traders are essentially opportunists who enter the market when possibilities for short-term profit present themselves.

There are several hundred distributors in the United States who carry Maine or Canadian lobster in some form. While no reliable information is available on the quantities of lobster each buys and sells, industry sources indicate that four Boston firms handle about *half* the wholesale market (including both United States landings and Canadian imports).

Retail

At the retail level, lobster is sold to consumers by restaurants, supermarkets and specialty seafood shops. Restaurants fall into four categories: white table cloth, family, dinner houses, and fast food. There are over 3,000 companies operating chains of three or more restaurants, and as well as there are tens of thousands of independent units offering lobster. The total number of restaurants would be in the hundreds of thousands. There are similar numbers of supermarkets, owned individually or by chain operators. Specialty seafood stores number in the hundreds.

No data are available on the proportion of retail sales each type of outlet accounts for. Informal information suggests restaurants are by far the leading supplier to consumers (the most recent formal information is a 1969 U.S. consumer survey which determined that 60 percent of lobster is consumed in restaurants). Supermarkets are next, with specialty shops a distant third. Live lobster and frozen tails are virtually the only product forms handled by restaurants. Supermarkets deal mainly in these, but also sell frozen meat and lobsters in brine. Frozen tails are the main product with specialty shops, followed by live and frozen meat.

Buyer-Seller Relationships

Fisherman/Buyer

Lobster buyers and fishermen are linked in informal ways. The arrangement may be described as one of mutual dependence. With few exceptions, buyers (processors and shippers) do not own inshore fishing vessels and do not have a secure supply of lobster. They depend on fishermen. Similarly, with few exceptions, fishermen do not own and operate lobster handling facilities (though they may have holding facilities), and do not have a ready means of marketing their catch. Most depend on buyers. Fishermen generally agree to sell all lobster to a particular buyer in exchange for an agreement by that buyer to provide a range of services including provision of supplies and credit, and access to unloading facilities and transportation. Buyers also agree to take *all* lobster from that fisherman at the prevailing shore price. For buyers, this often means taking supply in unfavourable market conditions.

Buyer/Distributor

Virtually all Canadian shippers and processors who export to the United States use independent distributors and brokers. The principal markets are Massachusetts, Maine and New York. Though transactions are at arms length, there is a need to develop good working arrangements (quality, delivery, payment, etc.), so relationships between particular buyers and distributors tend to be stable.

Distributor/Retail

What little is known about the structure of the distribution and retail aspects of the lobster market, suggests that there is limited vertical integration between seafood distributors and the restaurant and retail trade. Seafood distribution is highly specialized, and except for specialty outlets, fish products generally represent an insignificant part of individual restaurant and supermarket sales.

Entry and Exit

Harvesting

Limited entry licensing was implemented in the lobster fishery in the late 1960s. This was partly a conservation measure aimed at limiting the expansion of fishing effort, and partly an economic measure to ensure fishermen were able to earn adequate incomes. While no additional vessels may enter the fishery, licence transfers are permitted and the entry of new fishermen is therefore a possibility. In light of the relative prosperity lobster fishermen have experienced in recent years, transferability has also made it attractive to leave the industry if that was desirable. Licences are transferred for amounts in the tens of thousands of dollars.

Buying

There are no legal restrictions on the entry or exit of buyers (Nova Scotia has introduced a moratorium on buyer licences, but the restriction is being relaxed for lobster). Capital costs can be minimal for low-volume buyers wishing to ship crates of lobster to the United States, and do not represent a barrier to entry. For larger shippers to the United States and those wishing to engage in processing or shipping by air to Europe and Japan, the investments in processing or holding facilities and marketing can be substantial. Buyer data obtained from DFO for the Scotia-Fundy and Gulf Regions indicate high numbers of buyers entering and exiting the industry, with a net decline in the number of buyers (Table 5). This is consistent with the recent downturn in the industry.

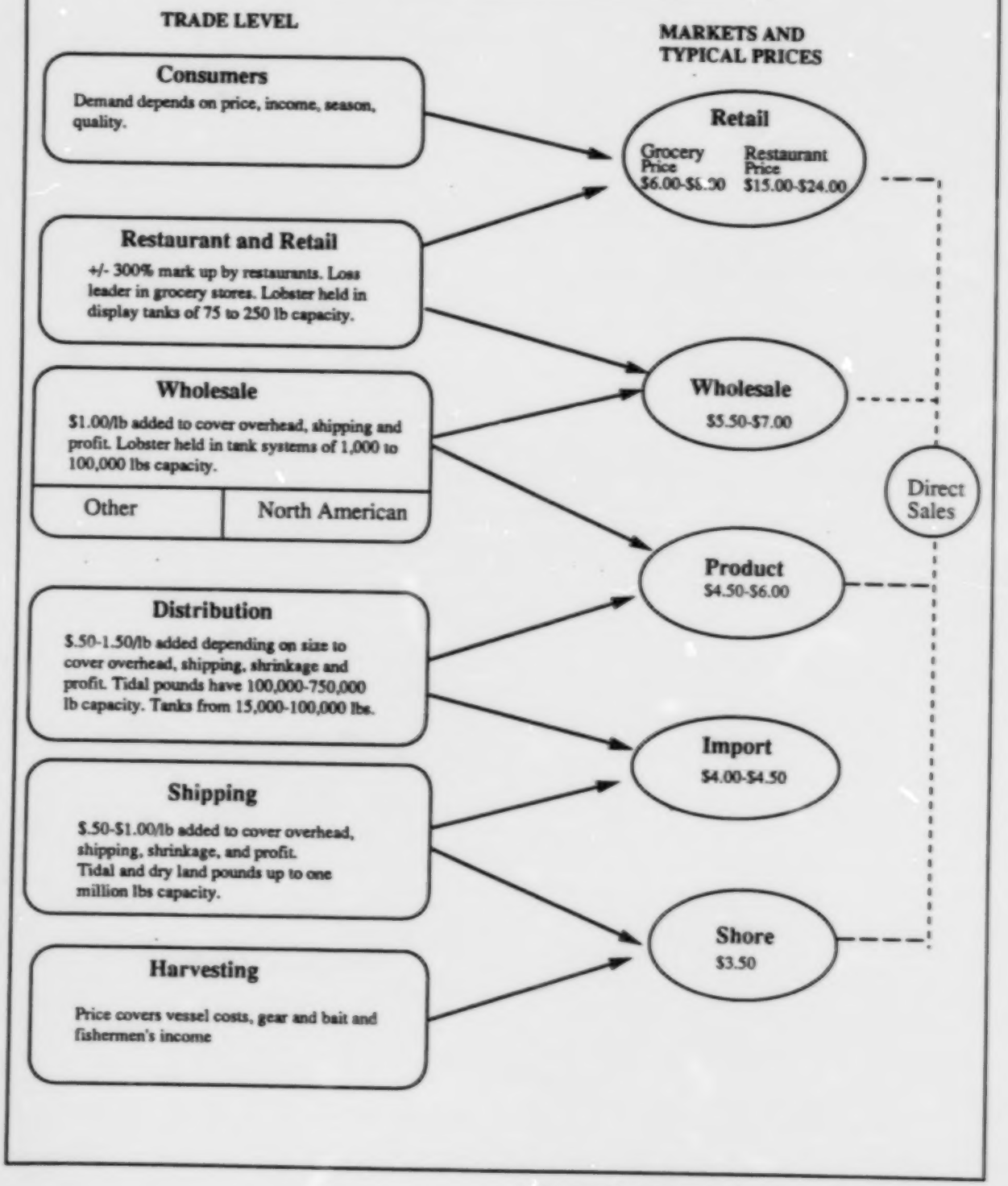
Table 5
Scotia-Fundy and Gulf Regions
Annual Number of Lobster Buyers, 1984-1990

Year	Scotia Fundy			Gulf					
				Markets			Canners		
	Number (1)	Entries (2)	Exits (3)	Number (1)	Entries (2)	Exits (3)	Number (1)	Entries (2)	Exits (3)
1984	n.a	n.a	n.a	190	n.a	47	173	n.a	49
1985	n.a	n.a	n.a	232	89	59	202	78	60
1986	188	n.a	28	246	73	59	214	72	21
1987	202	42	44	241	54	70	198	40	40
1988	210	52	48	231	63	49	198	60	75
1989	205	43	46	215	37	n.a	183	38	n.a
1990	179	20	n.a	n.a	n.a	n.a	n.a	n.a	n.a

Source: DFO Prepared by Gardner Pinfold Consulting Economists Ltd.

(1) Indicates number of different buyers active at some point during the year.
(2) Buyers entering the industry in a particular year.
(3) Buyers leaving the industry in a particular year.

Figure 8: General Schematic of Price Formation in North American Lobster Markets


TRADE LEVEL
MARKETS AND TYPICAL PRICES
Consumers
Demand depends on price, income, season, quality.
Retail
Grocery Price $6.00-$6.30
Restaurant Price $15.00-$24.00
Restaurant and Retail
+/- 300% mark up by restaurants. Loss leader in grocery stores. Lobster held in display tanks of 75 to 250 lb capacity.
Wholesale
$1.00/lb added to cover overhead, shipping and profit. Lobster held in tank systems of 1,000 to 100,000 lbs capacity.
Other
North American
Wholesale
$5.50-$7.00
Direct Sales
Product
$4.50-$6.00
Distribution
$.50-1.50/lb added depending on size to cover overhead, shipping, shrinkage and profit. Tidal pounds have 100,000-750,000 lb capacity. Tanks from 15,000-100,000 lbs.
Import
$4.00-$4.50
Shipping
$.50-$1.00/lb added to cover overhead, shipping, shrinkage, and profit. Tidal and dry land pounds up to one million lbs capacity.
Shore
$3.50
Harvesting
Price covers vessel costs, gear and bait and fishermen's income

Prepared by Gardner Pinfold Consulting Economists Ltd.

Distribution

Entry to the distribution branch of the industry, while formally unrestricted, is not simple and carries its share of risk. Arguably the greatest obstacle to entry would be knowledge of supply and demand conditions in the market. Considerable time and effort would be required to acquire this knowledge and to develop reliable suppliers and customers. Investments in holding facilities would also have to be made and working capital secured. Industry sources in the United States indicate that despite these factors, improvements in transportation and distribution systems and growing demand for lobster have lured many small producers and brokers into the business. In response to tighter competition, Americans have moved more aggressively into the European market.

Retail

For restaurants and retail stores the availability of space and investment in holding tanks would appear to be the main barriers to entering the lobster trade (assuming there were local distributors). Other key factors influencing the decision to sell lobster is price stability and year-round availability. The substantial number of establishments involved in lobster sales suggests these are not major obstacles, though they presumably have a bearing on profitability and help to explain some of the difficulties in market development.

Price Formation

Shore prices for lobster in Atlantic Canada are ultimately determined by demand and supply conditions in the United States, the dominant market for both live and processed product.

A highly simplified description of the price formation process is illustrated in Figure 8. The consumer demand for lobster is communicated by restaurants and retailers to wholesalers and distributors (including pound operators) in the United States, and this in turn is communicated to shippers and processors in Canada. Competition among shippers and processors to satisfy wholesale demand establishes prices at this level. Shippers and processors express their demand for lobster at the various ports and landing sites along the Atlantic Coast. Shore prices are established by the interactions between fishermen and buyers who may be representing local shippers and processors, or American importers and distributors directly.

Industry structure and behaviour conform to the characteristics of a competitive market. These characteristics effectively rule out the possibility of buyers or fishermen being able to maintain artificially low or high prices (even if they wanted to). Industry concentration is relatively low, implying that individual buyers and fishermen (or groups of either) have negligible influence over prices. There are informal ties between buyers and fishermen, but these tend not to relieve the buyer from paying competitive prices. But arguably the most important factor is that established buyers know it is easy for other buyers to enter the industry. Artificially low prices would soon attract competition and drive prices up.

Fisherman/Buyer: Scotia-Fundy

The annual process of price formation begins at the end of November and tends to be a ritualized affair, with initial low offers from buyers rejected by fishermen until a satisfactory price is reached. The time needed to arrive at a satisfactory price varies with the season, the area (in particular, whether it is possible for fishermen to hold lobster), market conditions and the financial position of buyers and sellers.

The fishery in southwest Nova Scotia is crucial from a price-setting perspective because of the influence it has on the general price level in other areas later in the season. The fishery opens at the end of November. Fishing effort is high because demand is strong leading up to the Christmas and New Year holidays. Initial offers from buyers are typically low. Some lobster is sold by fishermen who need cash or who lack holding capacity. But many fishermen withhold supplies in anticipation of higher prices. Prices rise as mid-December air shipment and trucking deadlines approach. The risks for fishermen are shrinkage or holding out too long. The risks for buyers are missed opportunities or paying too much.

Prices tend to remain high during the winter months (January-April). Demand tends to run ahead of supply, with pound inventories making up the difference. Prices typically drop in May, with the opening of the seasons in several other areas. The increase in Canadian supplies is accompanied by gradually increasing catches in the United States. Total supply in spring exceeds consumer demand, placing downward pressure on prices. Much of the supply during this period goes into pounds to be held until demand drives prices up. This occurs when the summer tourist season begins in the United States. By then (late June), most Scotia-Fundy seasons have closed and demand is met mainly by United States fishermen (and to a minor extent from the Gulf).

Fisherman/Buyer: Gulf

Markets for processed lobster products are relatively stable, and this is reflected in canner shore prices. There is sufficient information generally available about product markets (including wholesale prices and inventory levels) to reduce the scope for either buyers or fishermen to expect (or receive) prices which are out of line with competitive conditions.

The process of price setting is fairly formalized with cooperatives often playing a lead role. They buy lobster from their members for resale to processors. Should sale prices exceed the cooperatives' buying price, rebates are paid to members at year's end. The rebate system moderates price movement during the season. The initial prices set by cooperatives are generally matched by processing companies. As a reflection of competitive conditions, the rebates paid by cooperatives are matched by most buyers.

The bulk of the catch is landed in the spring season (May-July), and opening prices remain fairly steady. Prices generally drop during the fall season (August-October) because lobsters are harvested during the molt stage and have relatively low meat yield. If product demand is strong and inventories low, prices will hold at spring season levels throughout the fall season (as they did in 1987 and 1988). That the same (or sometimes higher) prices are paid for lower quality lobsters in fall is a sore point for fishermen active in the spring season. While this is perhaps understandable, it serves to demonstrate that market forces do shape prices.

The process of price formation for market lobsters is much the same as for canners, though conditions are more volatile due to the nature of the final product. There is less actual haggling over prices than in Scotia-Fundy, in part because fishermen lack the conditions to hold lobster, and in part because the Gulf spring season overlaps with the spring season in Scotia-Fundy, and opening prices are influenced to some extent by shore prices there. Substantial changes in market conditions during the season are not uncommon and are

reflected immediately in shore prices. Minor changes are sorted out through the rebate system.

Buyer/Distributor

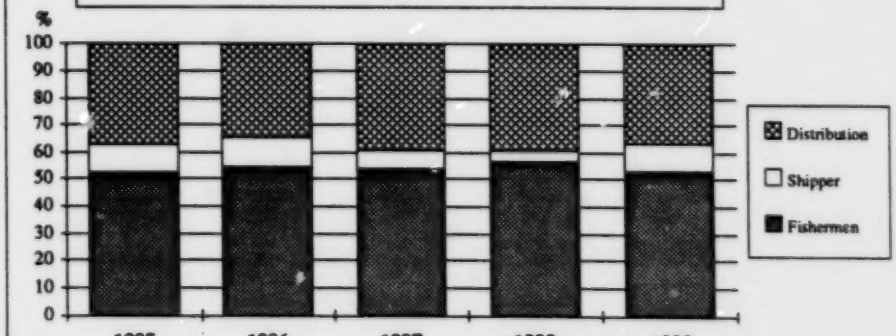
Canadian shippers and distributors dealing in the United States market are supply driven. They buy lobster when it is abundant and cheap, and hold it in the hope of selling when supplies are low and prices high. The margins earned by Canadian shippers tends to be low, a reflection of the limited value added in moving lobster to the Boston market or to pounds in Maine. Some shippers attempt to widen their margins by dealing directly with wholesalers in more distant markets.

A typical discussion between a shipper of live lobster in Atlantic Canada and a distributor or wholesaler involves quantity, delivery, and price. Competition for sales/purchases dictates that both groups have a good sense of market conditions. Though there is some stability in arrangements, there is also the need to shop for the best prices. Changes in market conditions are reflected rapidly in changes in price as distributors hunt for product or shippers for sales.

The sensitivity of price to changes in demand and supply is evident from Figure 9. It shows not only the sudden and wide fluctuations in price, but also the close relationship between price changes from distributor to shipper and from buyer to fisherman. How quickly price changes are communicated is an excellent barometer of competition in the industry.

Another measure, and one of particular interest to fishermen, is how the relative shares of wholesale prices accruing to fishermen, shippers and distributors have changed over time. Figure 10 indicates the shares do vary, but within a narrow range: fishermen receive 50-55% of the wholesale selling price, shippers 5-10%, and distributors (importers, distributors and wholesalers) 35-40%. This relative stability is to be expected over the short term, given the structure of the industry.

Figure 10: Share of Wholesale Price Recieved by Fishermen, Shippers and Distributors; 1985-1989



Source: DFO, Statistics Canada

Prepared by Gardner Pinfold Consulting Economists Ltd.

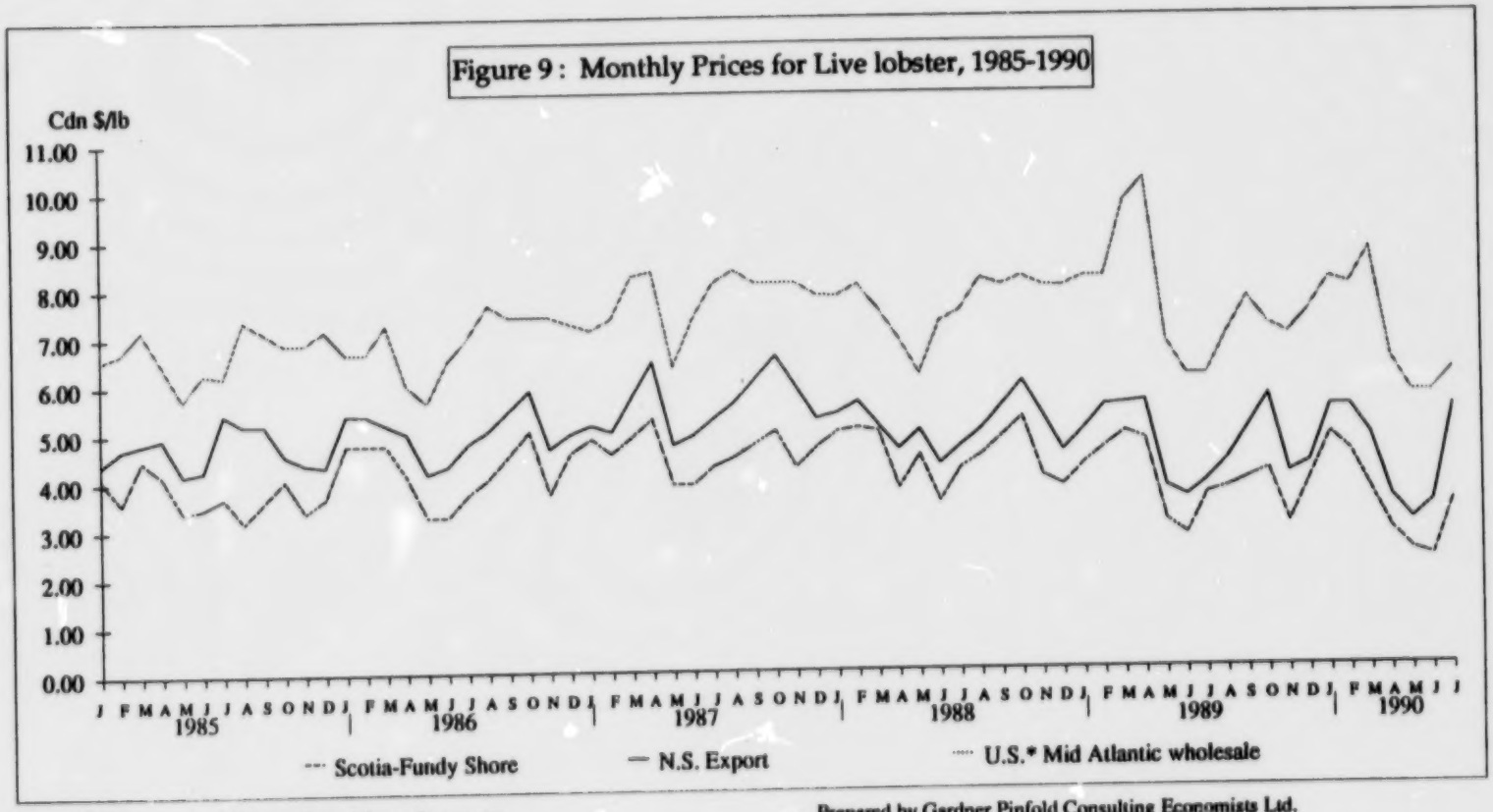


Figure 9 : Monthly Prices for Live lobster, 1985-1990
Cdn $/lb
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J
1985
1986
1987
1988
1989
1990
--- Scotia-Fundy Shore
— N.S. Export
···· U.S.* Mid Atlantic wholesale

Source: DFO

* Prices adjusted for exchange rate.

Prepared by Gardner Pinfold Consulting Economists Ltd.

The relative share accruing to fishermen increased in 1985-1988 period. One explanation for this is that as the producers, they held a slight competitive advantage during the period of rising lobster demand. In short, it was a sellers' market. Shippers appear to be the ones who were squeezed, as gross margins slipped up to 1988. The narrowing of margins may also reflect the appreciation of the Canadian dollar against its United States counterpart. Weak markets in 1989 seem to have shifted the balance, with each group in roughly the same position it occupied in 1985.

Distributor/Retail

The underlying principle for companies involved in distribution (importers and wholesalers) is to charge what the market will bear. Selling prices are generally held for short periods and are subject to change depending on market conditions. From a distributor's perspective, "market conditions" means demand. For much of the year demand is met from pounds so supply is generally not a major issue. Pricing is critical because importers buy when lobster is abundant and cheap (during the spring and fall) and hold in pounds until margins are believed to be at their maximum (generally during summer and winter).

The behaviour is highly speculative and subject to considerable risk. Disease and cannibalism among lobsters are major problems for pound operators. Added to this is the possibility that catches will be higher than expected during periods of normally low supply (this occurred during the winter of 1987/88 as discussed in Chapter III). This serves to narrow or eliminate margins and can lead to distress selling.

Retail/Consumer

Retail marketing of most products is based on stable pricing. This is particularly true of food, whether sold in restaurants or grocery stores. For restaurants, instability makes it difficult to plan menus. For supermarkets, lobster prices could change substantially in the time it takes to prepare advertising and promotional sales.

Most restaurants offering lobster do so at prices "subject to market conditions". This generally means that lobster will be served provided it can be offered at a price that allows the restaurant to realize its normal mark-up on food of some 300 percent (a lobster bought for $6.00 wholesale, would be sold for $18.00). While this may not always be achievable, distributors know when setting prices that restaurants are the main outlet for lobster. To try to push prices beyond levels consumers are willing to pay would be self-defeating. If this margin is narrowed unacceptably due to high wholesale prices, restaurants would react by taking lobster off the menu until prices come down. (Wholesalers apparently discovered these limits early in 1989 as some restaurants in the United States did take lobster off the menu.)

Restaurant prices tend to fluctuate within a narrow range, not just to promote stability, but to maximize profits. Just as there is an upper limit to restaurant prices, there is also a *lower* limit. Reducing prices would probably increase sales to a certain extent, but there are limits to how much lobster a restaurant can hold and how many people can be served. Also, the price of lobster relative to other items must be considered. In the final analysis, the restaurant's objective is to maximize *profit*, not sales.

The relationship between shore prices in Scotia-Fundy and lobster dinner prices of a major chain with restaurants in Montreal and Toronto is depicted in Figure 11. Several points are worth noting.

- Restaurant prices do follow the seasonal trend, though in a very muted way. Prices are relatively high (and sometimes rising) between January and April, they drop between May and August, and then rise between September and December.

- The seasonal restaurant/shore peaks and troughs occur almost simultaneously, suggesting that restaurant prices are sensitive to changes in supply.

- When expressed in dollar terms, the seasonal changes in restaurant prices generally *exceed* the changes in shore prices. This, of course, reflects wholesale price changes grossed up by the restaurant margin (a dollar change in the wholesale price may mean as much as a three dollar change in the restaurant price). The table below shows how much restaurant prices fell during the January-June period in relation to the drop in Scotia-Fundy shore prices.

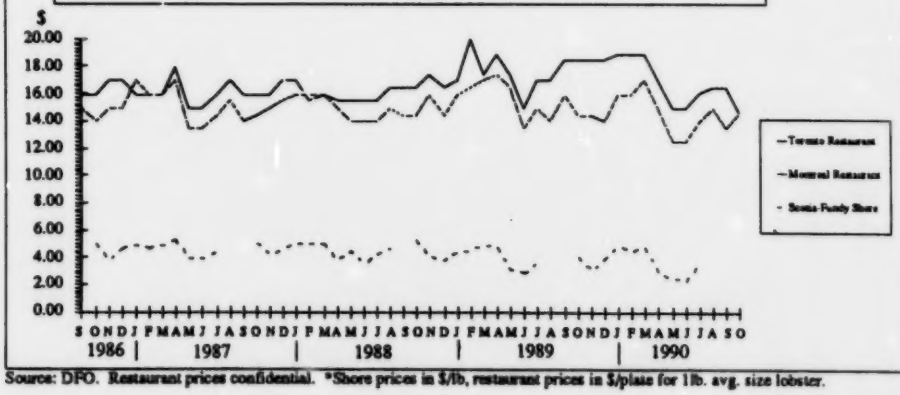
Seasonal Price Drop (Jan.-June)

	Toronto	Montreal	Scotia-Fundy
1990	$4.00	$4.50	$2.00
1989	$4.00	$4.00	$2.25
1988	$1.50	$2.00	$1.25
1987	$3.00	$3.50	$1.50

- Restaurant prices are generally higher in Toronto than Montreal. This reflects the higher cost of doing business in Toronto, but presumably also reflect differences in the relative affluence of the two cities.

- Restaurant prices show different patterns of fluctuation. For example, prices were rising in Toronto late in 1989 while holding steady in Montreal. This reflects the different competitive conditions in each city, including wholesale supply and prices.

Figure 11: Monthly Restaurant and Shore Prices for Lobster, 1986-1990



Source: DFO. Restaurant prices confidential. *Shore prices in $/lb, restaurant prices in $/plate for 1lb. avg. size lobster.

Summary and Conclusions

The lobster industry provides what could be termed a textbook case of a competitive market structure. This structure leads to competitively determined prices at each level of trade.

There are large numbers of buyers and sellers at each level of trade. Available data indicate a relatively low level of concentration among buyers and sellers of both markets and canners in Atlantic Canada. Low concentration implies weak market power and limited influence in setting prices.

Strong buyer-seller ties can inhibit competitive behaviour, but this is not the case in the lobster fishery. Though ties may be strong, they do not relieve the buyer from paying the going shore price. In other words, the elements of the buyer-seller relationship ensures the fisherman has a buyer, and the buyer a supplier; it does not influence price. Buyers know that failure to pay the shore price would result in fishermen shifting to another buyer.

In any industry, ease of entry and exit arguably offers the strongest assurance of competitively determined prices. If for some reason prices are below competitive levels, buyers would be attracted by the opportunity for quick profits. Entry and exit are easy for buyers dealing in live lobster. This puts pressure on established buyers to ensure prices are competitive. The ease with which "fly-by-night" buyers can enter the industry is a source of complaint among processors, particularly those with major investments in holding capacity. Both pay the same shore price and sell into the same market, but the established shipper must somehow earn higher gross margins to cover capital and operating costs.

Entry conditions are more difficult in the processing segment of the industry in the Gulf. Nonetheless, the number of processors has grown over the years in response to increased landings and favourable markets. Government assistance has also played a role. The industry is composed of a large number of processors and has relatively low concentration. In addition, the presence of fishermen's cooperatives provides a measure of countervailing power to maintain competitive behaviour amongst companies.

III. PRICE MOVEMENTS: 1988-1990

Factors Affecting Shore Price Formation

Throughout this report the observation is made that shore prices are determined by the interplay of supply and demand. Before examining 1988-1990 price movements in detail, it is worth reviewing in a general way some of the key factors affecting supply and demand.

Supply

Resource Conditions

The health of the resource is the major factor affecting long-term supply. Stocks have increased substantially since the late 1970s, and there are no indications this will change. The reasons behind the health of the resource are not well understood.

Prices and Fishing Effort

Strong demand pushed up prices during the 1980s. Fishermen responded with increased effort which led to increased catches and revenues in the short run.

Technology

Increased revenues induced investments in new technology (vessels, gear and electronics), which in turn led to further increases in effort and catches. In areas with extensive fishing grounds (mainly off southwest Nova Scotia), improved technology enables many fishermen to operate farther from shore.

Weather Conditions

Adverse weather can interrupt fishing effort and result in short-term price fluctuations. This is mainly a problem during the winter fishery. Improvements in technology in recent years have reduced weather down-time and led to increased catches during the January-March period.

Pounds

Tidal pounds and dry land pounds play an important market stabilizing role by helping to regulate seasonal variations in supply and reducing the magnitude of short-term price fluctuations. Improvements in harvesting technology and increased winter catches in the past five years have reduced the window of opportunity for tidal pound operators dependent on the United States market. Speculative gains from holding lobster are diminished. The rationale and viability of some pound capacity may be threatened. This could work to the detriment of market development, given the key role pounds play in stabilizing supply and prices.

Minimum Size Restrictions

The United States is increasing its minimum carapace size requirements. This affects domestic landings there and live lobster imports from Canada. In the short term, supplies in the United States and on international markets are likely to be reduced (some U.S. analysts indicate that the export trade is dependent on lobsters in the size category covered by the restrictions). If the conservation rationale for the new restrictions is sound (larger lobsters produce more eggs and lead to increased stock abundance), then supplies should increase in the long run (other things equal). Unless markets are developed for the increased supplies, downward pressure on prices can be expected.

Demand

Economic Conditions

The increased demand for lobster during the 1980s is associated with rising consumer disposable income. Slower economic growth after 1987, particularly in the northeast United States, appears to have had a negative effect on demand.

Seasonal Consumption Patterns

Lobster demand is composed of two market segments: the year-round restaurant trade in which demand is relatively low but stable, and the tourist trade in which demand is high but concentrated in the summer months.

Prices of Substitutes

There are diverging opinions about substitutes for live lobster. The prevailing view seems to be that crab, shrimp and rock lobster tails compete with lobster and that demand is sensitive to price changes for these products.

Health and Environment

Part of the increase in demand during the mid-1980s has been attributed to the general health-related increase in per capita demand for seafood. The more recent decline in demand has been attributed in part to concerns over the quality of the marine environment.

Market Development

Increases in demand are directly linked to market development efforts in the United States (outside the northeast) and in Europe and Japan. Limits to growth in demand (at recent high prices) in traditional markets appear to have been reached.

Financial Condition of Lobster Dealers

Many dealers survive by buying when prices are low and selling when they are high. Activity in this segment of the industry is based on expectations. If expectations turn out to be wrong, dealers can face financial difficulty and respond be being more conservative in the future. This means reducing demand and offering lower prices.

Exceptional Circumstances

The death of the Japanese Emperor early in 1989 is cited by some industry sources as a factor in the drop in prices. This view is contradicted by the export data. Not only does Japan represent a small part of the export market (and hence have a minimal effect on prices), but Canadian exports to Japan increased in 1989 after the Emperor's death.

Recent Price Movements

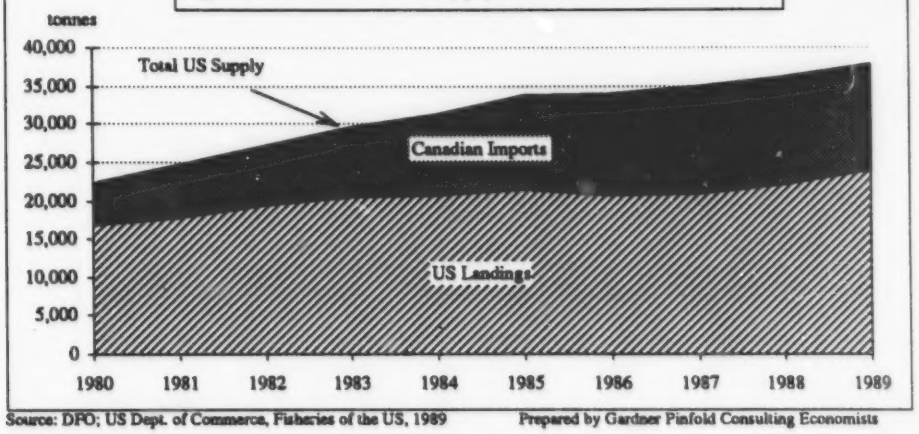
Long Term Trend

Several factors come into play in explaining the long-term price trend for markets and canners depicted in Figures 5 and 6 (Chapter II). The two main factors supporting the sustained price increases were strong economic growth in principal markets (United States, Europe and Japan), and market development. The important aspects of market development were greater supply and price stability through better holding facilities, and improved transportation and distribution systems.

Economic growth began to decline in late 1987. The stock market crash of October was followed by a general weakening of the economy of the northeastern United States. Tourism has also declined. Compounding these factors were several environmental incidents which the industry believes also had a detrimental effect on the demand for lobster and seafood generally.

Against this background of weakening demand, the supply of live lobster available in the United States continued to increase (Figure 12). Total United States landings rose by about 7 percent in 1988 and 9 percent 1989. Imports of live product from Canada were fairly steady at about 14,000 tonnes. Imports of processed product (mainly frozen in-shell and frozen meat) were also steady at about 4,000 tonnes.

Figure 12: United States Supply of Live Lobster, 1980-1989



Source: DFO; US Dept. of Commerce, Fisheries of the US, 1989 Prepared by Gardner Pinfold Consulting Economists

It is interesting to note that United States lobster exports increased four-fold in the 1987-1989 period, rising from 1,716 to 6,924 tonnes (product weight). This was presumably in response to the relatively more attractive market conditions abroad (mainly Europe and Japan). It would appear that at least some of Canadian exports to the United States are being re-exported. Though Canadian shippers and processors have made important inroads into the European and Japanese markets, the United States export data suggests a more aggressive approach may be necessary.

Seasonal Fluctuations

Market Lobsters

Shore prices in the Scotia-Fundy and Gulf Regions in 1989 and 1990 fluctuated more widely than at any time during the 1980s (Figures 5 and 6, Chapter II). Industry sources contacted as part of this study traced the instability to problems experienced by pound operators (mainly American) in 1987 and 1988, which carried over to 1989. The sequence of events leading to the 1989 and 1990 price movements are summarized in the following points. Corresponding dates and prices are depicted in Figure 13.

1. *High 1987/88 pound inventories lead to conservative buying and selling in 1989.* Pounds normally deplete their inventories during the winter before the spring fishery starts. The winter (December-March) catches in 1986/87 and 1987/88 were unusually high, making it difficult for pound operators to reduce inventory. Many were left with costly inventories when the spring seasons opened, and were forced to sell at the lower spring prices. The problem was particularly acute due to strong April catches in 1987 and 1988 (Figure 14). To avoid the spring gluts (and low prices) they faced in these years, and also because many were in financial difficulty, operators in Canada and the United States played the market in a more conservative fashion and sold off their inventories during the early part of 1989.

2. *Reduced 1989 winter inventories and low catches lead to high prices:* Catches were down in the fall/winter fishery of 1988/89, but despite this, prices were lower than levels in the preceding year. This reflected demand conditions to a certain extent, and also the more cautious approach by buyers and pound operators (who were selling off inventories). Catches were low in March and

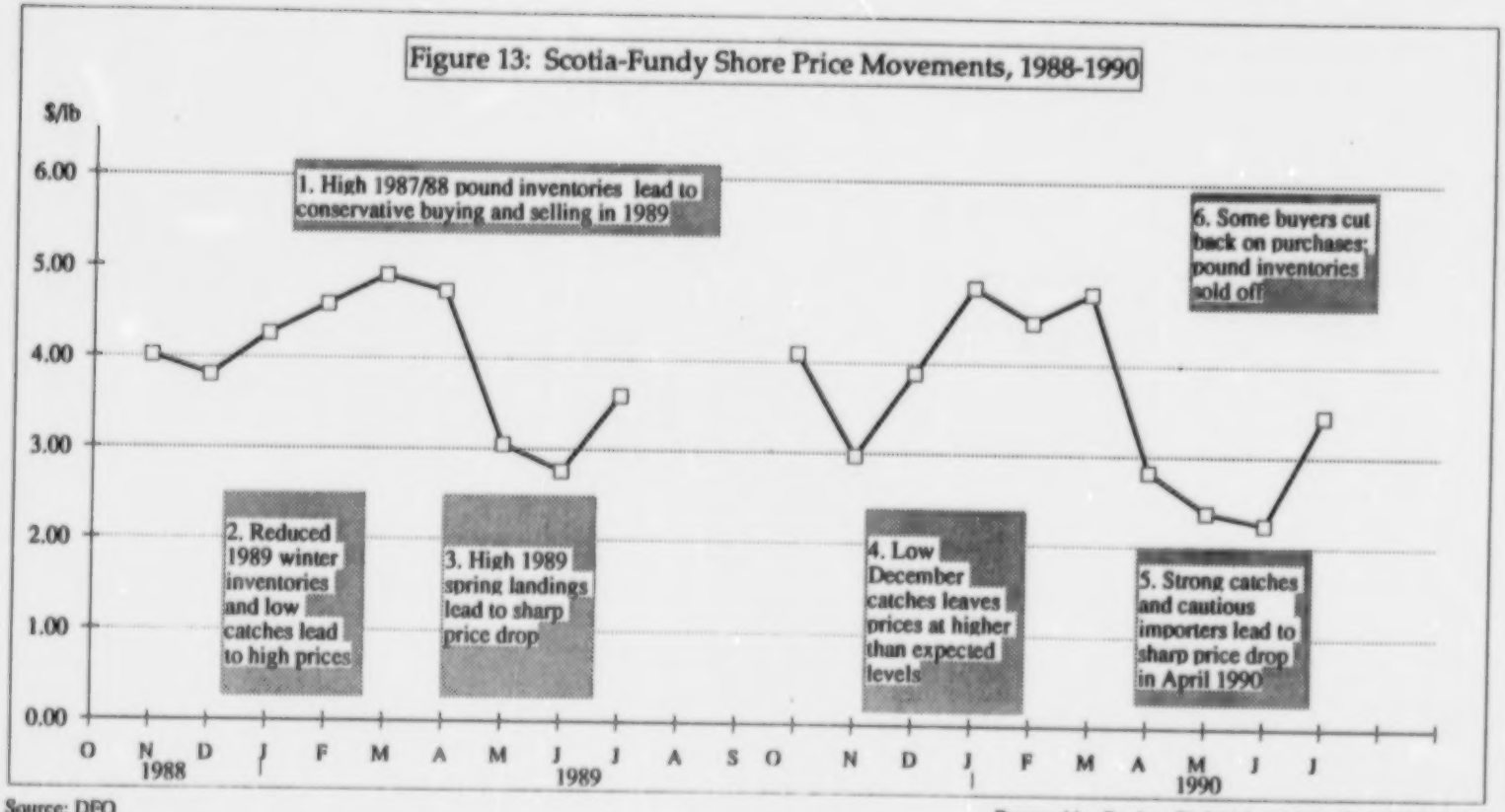


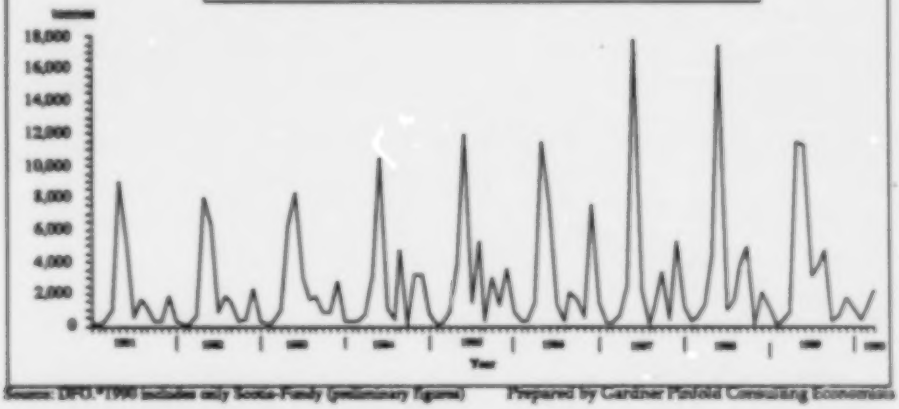
Figure 13: Scotia-Fundy Shore Price Movements, 1988-1990
$/lb
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1. High 1987/88 pound inventories lead to conservative buying and selling in 1989
2. Reduced 1989 winter inventories and low catches lead to high prices
3. High 1989 spring landings lead to sharp price drop
4. Low December catches leaves prices at higher than expected levels
5. Strong catches and cautious importers lead to sharp price drop in April 1990
6. Some buyers cut back on purchases; pound inventories sold off
O N D J F M A M J J A S O N D J F M A M J J
1988
1989
1990

Source: DFO

Prepared by Gardner Pinfold Consulting Economists Ltd.

April of 1989 due to bad weather (Figure 14), and with no inventories to draw from, prices rose to record levels. Published reports indicate many restaurants withdrew from the market during this period.

Figure 14: Atlantic Coast Lobster Landings 1981-1990*



Source: DFO. *1990 includes only Scotia-Fundy (preliminary figures) Prepared by Gardiner Pinfold Consulting Economists

3. *High 1989 spring landings lead to sharp price drop.* Prices fell abruptly in May and June as Canadian landings increased sharply (Figure 13). New England landings were also stronger than usual and contributed to declining prices. The apparently saturated tourist trade was unable to absorb available supplies.

4. *Low December catches leaves prices at higher than expected levels.* Despite lower 1989 prices, Canadian buyers felt they were paying a shore price which did not reflect depressed market conditions. Most buyers expected a price "correction" when the new season started in late November, but landings were below normal levels in December due to bad weather and prices were higher than anticipated. Landings were at normal levels during January and February 1990, and prices were at or above 1989 levels for these months (Figure 13). Good weather in March resulted in record landings and continued high prices.

5. *Strong catches and cautious importers lead to sharp price drop in April 1990.* The so-called "correction" occurred in April as the average shore price fell from over $4.50 to below $3.00/lb (Figure 13). A price drop is normal in the spring, but it usually occurs in May when landings from other areas in Atlantic Canada reach the market. Landings in April had reached a record level for that month, and this accounts for part of the price drop. Industry sources also point out that American and European wholesalers were reluctant to make commitments knowing that inventories of both live and processed lobster were high and would within weeks be augmented with supplies from other areas.

6. *Some buyers cut back on purchases; pound inventories sold off.* Some Canadian shippers reportedly cut back on purchases. Pound operators, began to sell off inventories in an attempt to avoid losses. This, coupled with the new catch, caused prices to plunge. They remained at almost decade-low levels in both Scotia-Fundy and the Gulf until the 1990 summer seasons ended.

Canner Lobster

During 1987 when lobster demand was strong, canner prices reached a peak of about $2.50/lb in the spring season (Figure 6). There was a drop in the fall season, but prices remained consistently above $2.00 per lb. Processors were optimistic that demand would continue to grow and sustain these price levels. Competition for canner supplies was reflected in continued high prices in spring of 1988, and there was no price drop in the fall season. Inventories of frozen product were relatively high late in 1988, but by early 1989 most of this had been sold. Processors interviewed during this study claimed that (in retrospect) shore prices had been higher than markets could support, and the inventory sell-off was largely a matter of cutting losses.

The sequence of events leading to the 1989 and 1990 price movements are summarized in the following points. Corresponding dates and prices are depicted in Figure 15.

1. *Low spring 1989 inventories lead to strong demand and high prices for canners.* Demand and prices for processed lobster products were strong during the winter of 1989, following the 1988 inventory sell-off (Figure 15). Relatively low winter landings of market lobster (and record high prices) may also have served to raise expectations about prices for processed lobster product. With inventories of product at low levels, competition among processors for canners was reportedly strong and spring season prices fell only marginally from the high 1988 level. The gap between canners and markets was considerably narrowed.

2. *High inventories and weak 1989 product demand cause canner prices to drop.* With lobster demand and prices in general down in 1989, processors found themselves carrying higher than normal inventories into the fall season (Figure 16). A flood of substitute products (crab, shrimp, etc.) on the market in 1989 was cited as a major contributing factor to the weak demand. Demand for canners declined which caused prices to drop to levels experienced in the early 1980s (Figure 15). Much of the inventory was moved by the end of 1989, but some was held over into 1990. Industry sources contend that the weak financial position of many companies forced them to sell inventory at distress prices to meet cash flow requirements.

3. *Weak demand and inventory carry-over cause 1990 spring prices to drop sharply.* Weak demand and inventory carry-over (one processor estimated companies were carrying as much as 25% of 1989 purchases into 1990) caused spring prices to drop to $1.25/lb, a level not seen since 1980.

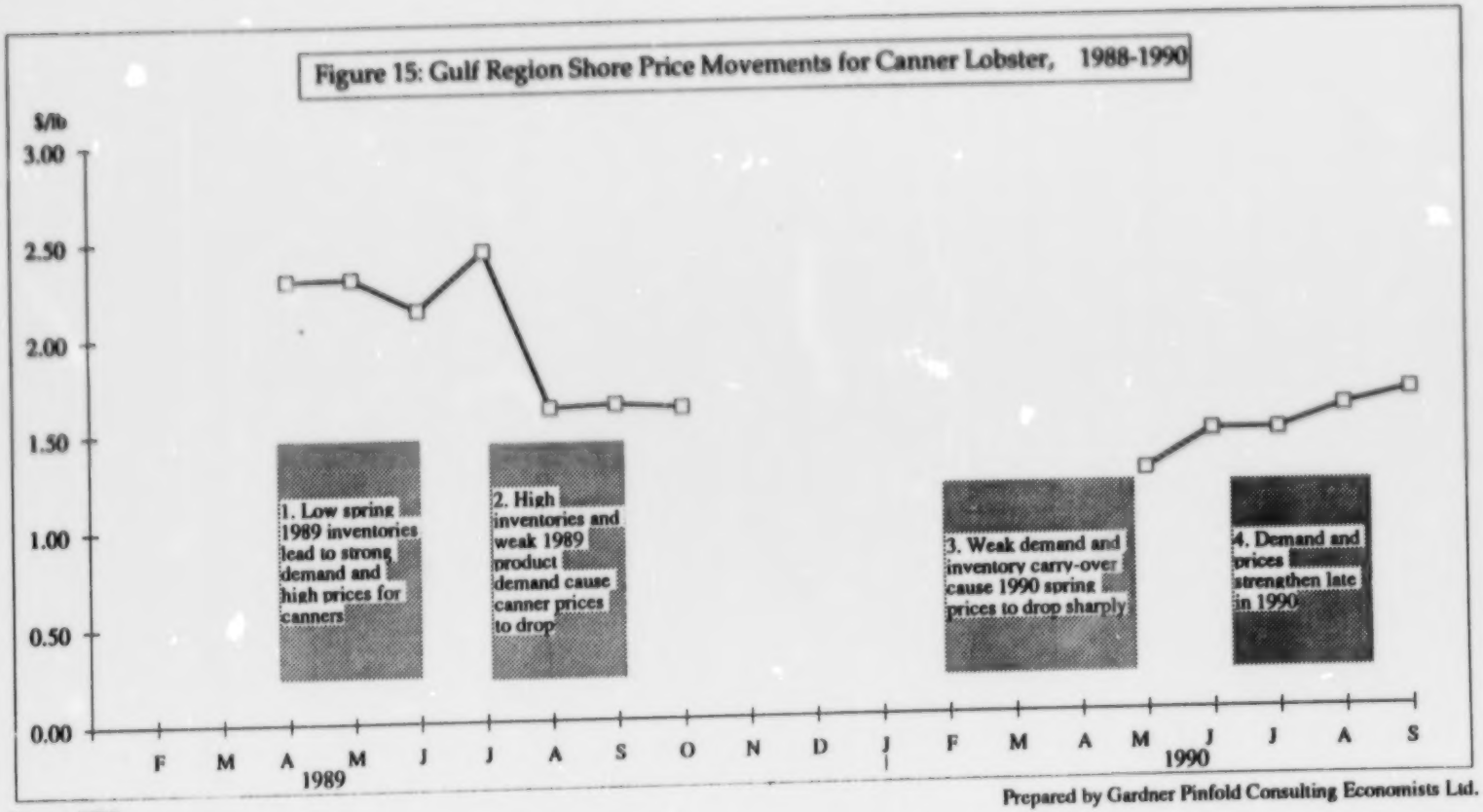
4. *Demand and prices strengthen late in 1990.* The 1989/90 price and inventory adjustments allowed processed lobster to occupy a more competitive market position, and demand strengthened as the season continued. By September, canner shore prices had increased, but were still well below the levels experienced in the late 1980s.

Summary and Conclusions

Recent Fluctuations

Expressed in the simplest terms, the abnormal price fluctuations of the past three years may best be described as the reaction of the industry to the difficulties markets had in digesting increased supplies. The problem has both long-term and short-term dimensions.

Figure 15: Gulf Region Shore Price Movements for Canner Lobster, 1988-1990


$/lb
3.00
2.50
2.00
1.50
1.00
0.50
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1. Low spring 1989 inventories lead to strong demand and high prices for canners
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3. Weak demand and inventory carry-over cause 1990 spring prices to drop sharply
4. Demand and prices strengthen late in 1990
F M A M J J A S O N D J F M A M J J A S
1989
1990

Prepared by Gardner Pinfold Consulting Economists Ltd.

Source: DFO

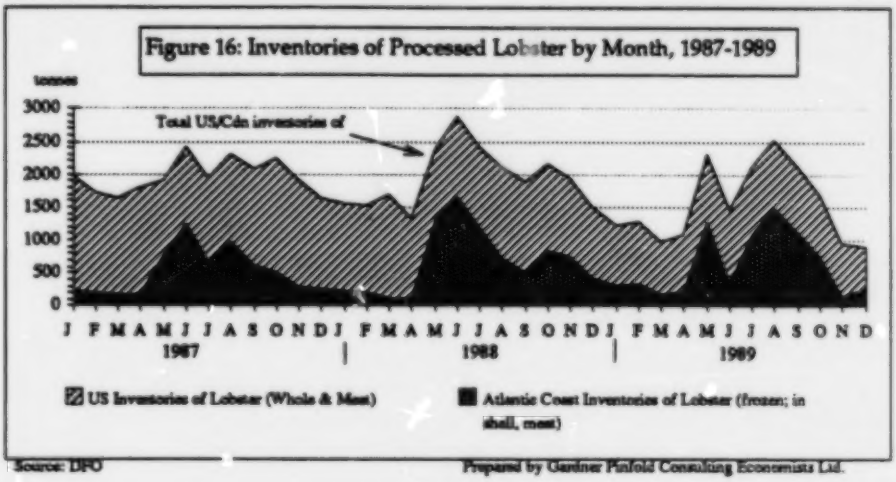
Figure 16: Inventories of Processed Lobster by Month, 1987-1989
tonnes
3000
2500
2000
1500
1000
500
0
Total US/Cdn inventories of
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1987
1988
1989
US Inventories of Lobster (Whole & Meat)
Atlantic Coast Inventories of Lobster (frozen; in shell, meat)
Source: DFO
Prepared by Gardner Pinfold Consulting Economists Ltd.

The long-term downturn in prices reflects declining economic conditions in principal markets (mainly the northeast United States). It also reflects a slowing down in market development in the face of continuing increases in supply. In short, unless and until new markets are developed, the limits to growth would appear to have been reached.

The short-term instability would appear to be a reflection of four key factors. These are always present in the lobster industry, but each taken individually is not generally a source of serious disruption. Disruptive changes in these factors coincided in 1989/90, and against the backdrop of the long-term demand-supply imbalance, led to the difficulties experienced.

Inherent Uncertainty

There is an element of inherent uncertainty in an activity which depends on unpredictable resource and weather conditions. Weather played an important role in affecting winter supply in 1987/88, and effectively undermined the balancing act performed by pounds.

Speculative Behaviour

There is a seemingly heavy reliance on an informal supply management system – pounds – for bringing demand and supply into balance. Pounds play an important role, but they survive on the basis of speculative behaviour. Experience shows that with the right combination of market circumstances, they can increase rather than minimize instability.

Supply-Driven Industry

The industry is supply-driven, compelling buyers to purchase what is caught irrespective of market conditions. This promotes risk-taking and leads to instability. Individual operators may suffer losses due to bad luck or miscalculation. But the price instability caused by an inventory sell-off can extend well beyond a few individuals and affect broad segments of the industry.

Inadequate Information

The necessary quality of information to clear the market efficiently is missing. For a market to function smoothly (i.e., for stable price adjustments in response to changes in supply and demand) accurate information about market conditions has to be widely available. While the market information (quantity and prices) at the harvesting and wholesale levels tends to be of good quality, there is clearly room for improvement at the importer or distribution level where

lobster is held for considerable periods in pounds and other holding facilities. Because information on quantities held is not readily available, individuals are forced to react to market signals with limited knowledge. In a segment of the market based at least in part on speculation, this can lead to over-reaction and instability.

Price Outlook

While there are signs of a return to relative stability after the events of the past three years, our ability to predict long-term price movements with any confidence is clouded by several contradictory factors and a number of unknowns. Among these factors is the question of how increasing carapace size in the United States will affect supplies and prices. There is much speculation about this (and some of this is outlined below), but careful analysis of the matter is required before any meaningful conclusions can be made.

Economic Conditions

This is one of the most important determinants of demand. Unfortunately, the short-term economic outlook continues to be bleak in most markets. Tourism and the restaurant trade are generally among the first segments of the economy to feel the effects of a downturn. This means prices in general are not likely to return to 1987 levels for the foreseeable future. Whether they are likely to slip any further is difficult to say. Demand appears to have strengthened late in 1990, and this may be enough to provide some price stability. A return to the rising price trend of the mid-1980s is closely linked to an improved economy which appears to be at least a year or two away.

Market Development

The efforts of a few companies to develop markets in Europe and Japan are reflected in stronger demand and higher shore prices than would have been the case if Canada continued to rely on traditional markets in the northeast United States. Some Canadian companies are also successfully by-passing Boston distributors and selling directly to wholesalers in more distant parts of the United States. Marketing efforts will be important in these areas, given the increase in the average size of lobsters and the effect this may have on prices. Unless efforts to expand markets continue, any improvement in prices can be expected to be weak.

Canadian Landings

If other things remain unchanged (e.g., demand), continued increases in Canadian landings will exert downward pressure on prices. At present there are no indications of change in the trend of increased landings of the past several years.

United States Landings

Further increases in the minimum allowable size are due in 1991 and 1992, and are expected to result in reduced overall landings (and possibly reduced imports from Canada). This decline in supply is expected to result in upward pressure on prices in general. But because these reductions in overall supply affect the smaller lobster preferred by restaurants, there is also expected to be downward pressure on prices in the short term (the reasons for this are given below). What the net effect in the short term will be is unclear.

United States Minimum Size Restrictions

These have the short-term effect of reducing supplies of "chix". Ordinarily, reduced supply would be expected to lead to higher prices. But because chix are the size preferred by restaurants, reduced supply is expected to lead to lower prices per pound of larger sizes. Restaurants are expected to be paying less per pound for larger lobsters in order to maintain their margins on meals served (this because there is perceived to be an upper limit on what can be charged per meal). In the long term, it is difficult to predict whether any decrease in price per

pound will be offset by the increased average weight. In other words, what the net effect on *revenues* will be is not known.

International Supply

With each increase in the United States minimum size restrictions, the international supply of lobster falling within the prohibited size range is expected to decrease (though by how much is not known). The only supplier of so-called "Canadians" now is Canada. There had been some initial concern that Canadian exporters would find it difficult to find sufficient demand for these lobsters once exports to the United States ceased. This fear appears to have been unfounded. The size is preferred in international markets for the same reasons it is preferred in the United States. Demand appears to be strong, and with reduced supplies from the United States, prices for "Canadians" should be firm.

Substitutes

Competition from substitutes will continue to be strong and will continue to exert downward pressure on lobster prices.

Financial Considerations

Lobster dealers and processors were hurt financially in the late 1980s following years of aggressive purchasing and weak markets. They are likely to continue to operate conservatively as long as the economy is relatively weak. This means weaker demand and lower shore prices in the short term.

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